

SONY

DXC-537P

MODEL

USER MANUAL

## SECTION 1 INTRODUCTION

### 1-1. INTRODUCTION

### Choosing from NTSC or PAL Systems

The following explains the differences between the NTSC and PAL systems regarding accessory selection for the DXC-537 series camera.

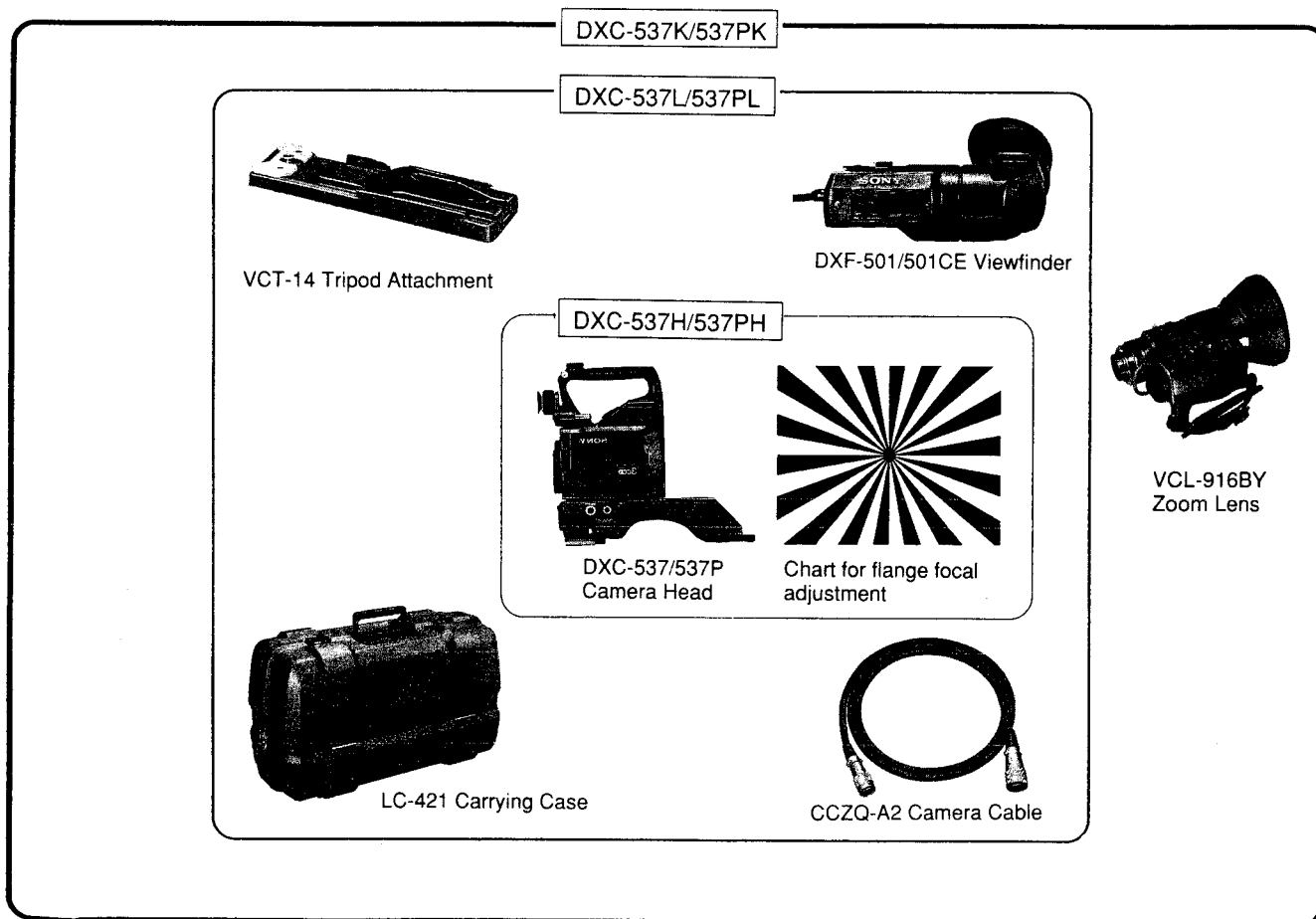
Some PAL components can operate on NTSC equipment and vice-versa. In general, however, this is not the case. You must use the type of equipment and accessories that matches the signal system of your camera. Use the DXC-537 series camera within the NTSC color system, and use the DXC-537P series camera within the PAL system. See the table to the right for other possible component combinations.

The following illustration depicts which components you can use with each piece of equipment. The components in the outermost box can be used with all equipment and those in the innermost box can be used with only a few.

NTSC/PAL Component Combinations

<b>Composition</b> \ <b>Model</b>	<b>DXC-537K/ 537PK</b>	<b>DXC-537L/ 537PL</b>	<b>DXC-537H/ 537PH</b>
DXC-537/537P Camera Head	Yes	Yes	Yes
VCL-916BY Zoom Lens		No	No
DXF-501/501CE Viewfinder		Yes	
LC-421 Carrying Case			
CCZQ-A2 Camera Cable			
VCT-14 Tripod Attachment			Yes
Chart for flange focal length adjustment		Yes	

#### DXC-537 Series Usable Accessories



## Notes on Using Accessories with the DXC-537 Series Camera

- If you use the CA-537/537P Camera Adaptor (optional) with this camera, operate the camera according to the instructions in this manual.
- If you use the CA-327/327P Camera Adaptor (optional), operate the camera according to the instructions that come with the adaptor.
- If you use a zoom lens other than the VCL-916BY Zoom Lens, operate the camera according to the instructions that come with the lens. (For further information on accessories, see "Optional Accessories and Recommended Equipment", on page 1-69.)

## On Using and Storing the Camera

This section explains how to safely use, store and clean the camera.

### When setting up the camera

- Do not attach the zoom lens without reading "Attaching the Zoom Lens and Optional Filter" (page 1-14). Attaching the lens incorrectly may damage the lens.
- Do not directly connect the camera to an AC power line. Use the recommended camera adaptor or use a 12 volt DC power source.
- Do not block air circulation about the camera to prevent internal heat build-up.

### When operating the camera

- Avoid rough handling or mechanical shock.
- Avoid strong magnetic fields to prevent signal distortion.
- Avoid operating the camera in environments that exceed the temperature range of  $-10^{\circ}\text{C}$  to  $+45^{\circ}\text{C}$  ( $14^{\circ}\text{F}$  to  $113^{\circ}\text{F}$ ).
- Do not point the viewfinder directly at the sun.
- Do not grip the camera by the viewfinder.

### When storing and shipping the camera

- Cover the lens with the supplied lens cap when you do not plan to use the video camera for an extended period of time.
- When you transport the camera, repack it as it was originally shipped. Do not discard the packing carton. This affords maximum protection whenever you ship the camera. Do not ship or transport the camera in the carrying case alone.
- Store the camera with the viewfinder moved fully in the direction opposite the viewfinder barrel and the lock ring tightened.

### When cleaning the camera

- Clean the cabinet, panel, and controls with a soft, dry cloth or a cloth moistened with a mild detergent solution.
- Do not use any type of solvent, such as alcohol or benzine which might damage the finish.

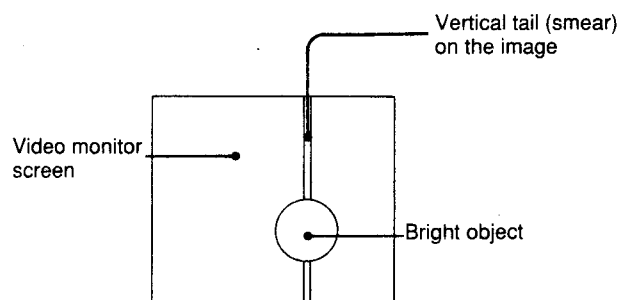
If you have any questions about this camera, contact your authorized Sony dealer.

## Managing Hyper-Sensitivity in the CCD Image Sensor

Because of the high sensitivity of the CCD Image Sensors, the following phenomena may appear on the monitor screen while you are using the DXC-537 series color camera. These phenomena do not mean that there is anything wrong with the camera.

### Vertical Smear

Smear tends to happen when an extremely bright object such as an electric light, fluorescent lamp, sunlight, or strong reflection is being shot.



### White Dots

White dots may appear in the video output if the camera is used at very high temperatures.

### Aliasing

Aliasing may occur when you shoot fine stripes or straight lines. The lines appear jagged.

### Poor Pictures

You may not get a clear picture if the GAIN selector is set to 18 dB when you are using the electronic shutter. Use the electronic shutter under lighting conditions where you can obtain a clear picture with the GAIN selector set to the 0 or 9 dB position.

## Features of the DXC-537 Series Camera

### Hyper HAD™ Sensor CCD Chip Design

The Hyper HAD™ Sensor CCD Chip design employs three  $\frac{2}{3}$ -inch CCD (Charge Coupled Device) images each having a total of about 380,000 (NTSC) or 460,000 (PAL) effective picture elements. The CCD offers better picture quality over tube type pick-up devices by providing:

- higher resolution and sensitivity
- lower lag, higher image burning resistance, and no deflection distortion
- less vibration and magnetic field distortion
- higher S/N ratio that allows you to raise the video output level by 9 dB or 18 dB to get a clear picture under low light conditions

### Maximum System Versatility

By attaching optional equipment you can expand the usability of the camera:

- the CA-537/537P Camera Adaptor enables you to control the camera via a camera control unit or VTR
- the CA-325A/325AP or 325B enables multiple outputs of RGB format signal
- a Hi8 format videocassette recorder turns your unit into a camcorder
- the CCU-M7/M7P Camera Control Unit allows you to use the camera as a studio camera
- the various kinds of power sources (battery, AC, and DC) allow you to use the camera under many power situations

### Electronic Shutter

The Clear Scan™ Function and the built-in electronic shutter ensure better pictures:

- the Clear Scan™ Function reduces the stripe noise which appears when a CRT screen (such as the screen of a personal computer) is shot by the camera
- the electronic shutter lets you shoot fast moving objects with little blurring

### Automatic Adjustment and Memory Functions

The camera automatically adjusts white/black balance as well as camera settings, and stores the adjustments for later use.

### Viewfinder Displays

So you don't have to take your eye off what you are shooting, the viewfinder displays adjustment indications and warnings. The viewfinder shows the following four displays:

- Characters: show switch settings, warning indications, and the title characters to be superimposed
- Zebra Pattern: appears on the portion of the screen where the video output is about 70 to 80 IRE (for NTSC) or 490 to 560 mV (for PAL). This pattern acts as a reference when you manually adjust the iris
- Safety Zone Marker and Center Marker: indicate the safety zone for shooting and the center of the picture
- REC Indicator: flashes if the connected VTR malfunctions

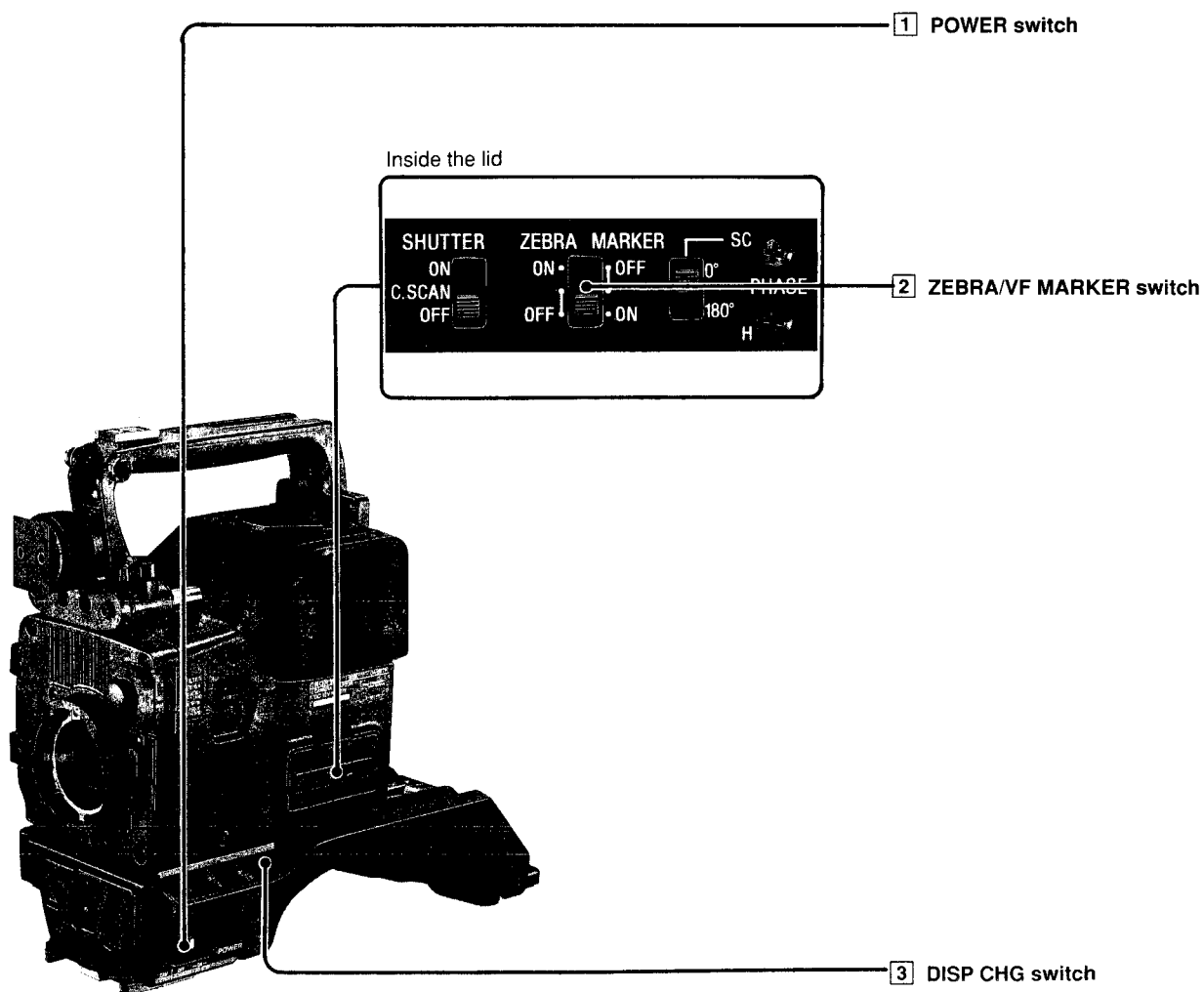
## 1-2. SET-UP

### Location and Function of Parts

#### DXC-537/537P Camera Head

The DXC-537/537P Camera Head is the modular core of this multipurpose camera system. Depending on your purpose, connect VTRs and camera control units to it via the CA-537/537P or CA-327/327P camera adaptor.

#### Camera Head Power Supply and Indications



**1 POWER switch**

**OFF:** Turns the camera off.

**ON SAVE:** Select to save power. When you press the VTR start button, there is a delay before recording starts, but the amount of power consumed in this mode is less than when the camera is in stand-by mode (STBY).

**ON STBY:** Select for a quick start. When you press the VTR start button, recording starts immediately. In this mode power continues to be consumed while the drum heads rotate.

**2 ZEBRA/VF MARKER switch**

**ZEBRA:** Set this switch to ON to display the zebra pattern on the viewfinder screen for manual iris adjustment. The zebra pattern appears in the picture where the video level is about 70 to 80 IRE (for NTSC) or about 490 to 560 mV (for PAL). (See page 1-49.)

**VF MARKER:**

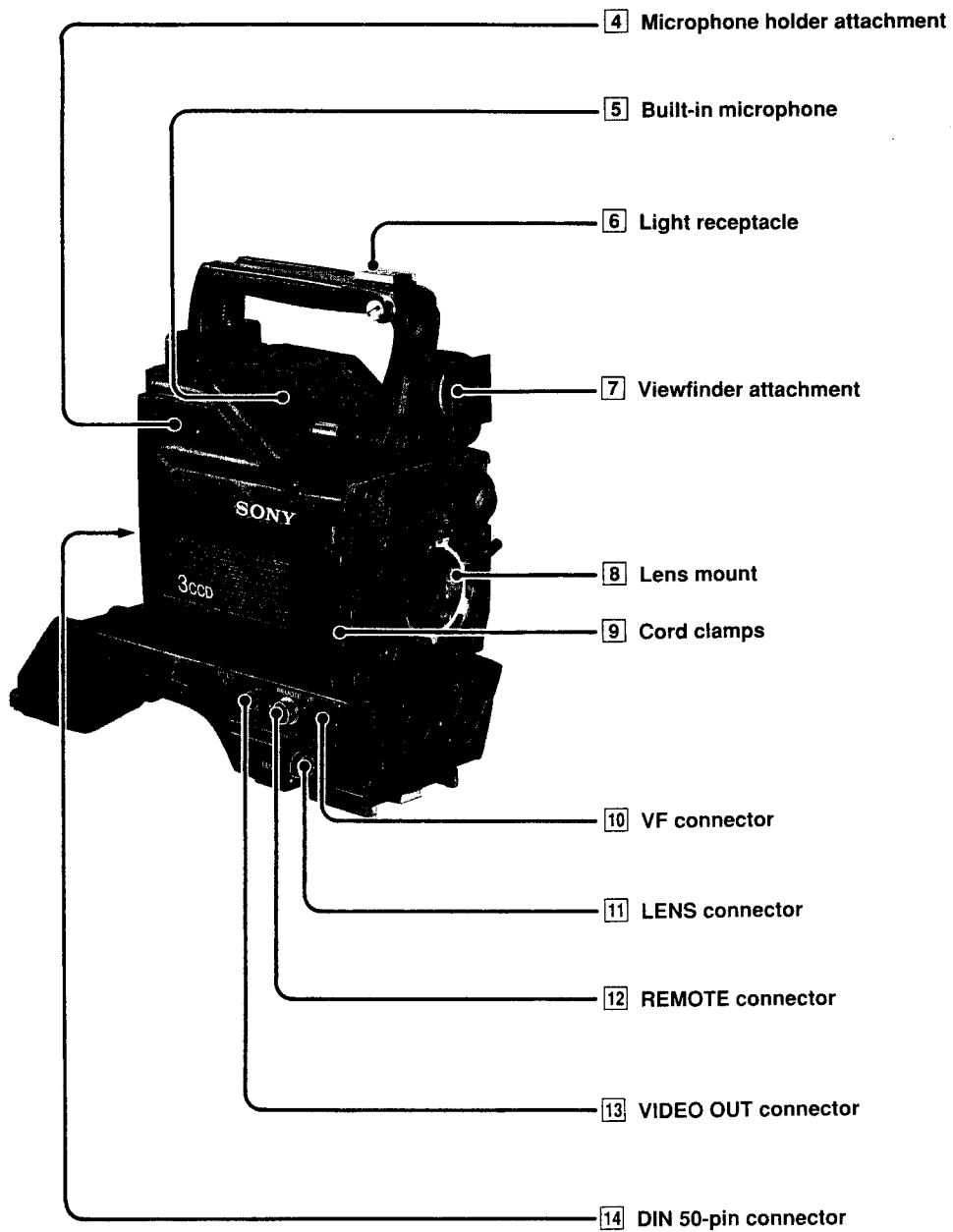
**ON:** Set this switch to make the center marker and safety zone borders appear in the viewfinder. The safety zone is 90% of the screen area.

**OFF:** Both the VF marker and zebra pattern disappear from the viewfinder.

**3 DISP CHG (display change) switch**

Push this switch to change the character display mode of the viewfinder screen (See page 1-33.)

## Camera Head Attachments and Input/Output Connectors



**4 Microphone holder attachment**

Attach an optional CAC-12 microphone holder here (See page 1-24.)

**5 Built-in microphone**

The built-in microphone functions automatically when a portable VTR is connected to the camera. This allows you to make a sound recording along with the video recording.

When an external microphone is connected to the MIC IN connector on the CA-537/537P camera adaptor, the built-in microphone does not function. We recommend you use a uni-directional external microphone to get a better sound recording.

**6 Light receptacle**

This allows you to attach a video light or other accessories.

**7 Viewfinder attachment**

Attach the DXF-501/501CE viewfinder here.

**8 Lens mount**

Attach the VCL-916BY zoom lens and related equipment here.

**9 Cord clamps**

Secures the viewfinder and lens cords.

**10 VF connector**

Connect the viewfinder cord here.

**11 LENS connector (12-pin)**

Connect the lens cord here.

**12 REMOTE connector (10-pin)**

To operate this camera from an RM-M7G Camera Remote Control Unit, connect the camera to the remote control unit via this connector. Make sure the CAMERA SELECT switch on the bottom of the RM-M7G is set to "1", the factory preset position.

**13 VIDEO OUT (output) connector (BNC connector)**

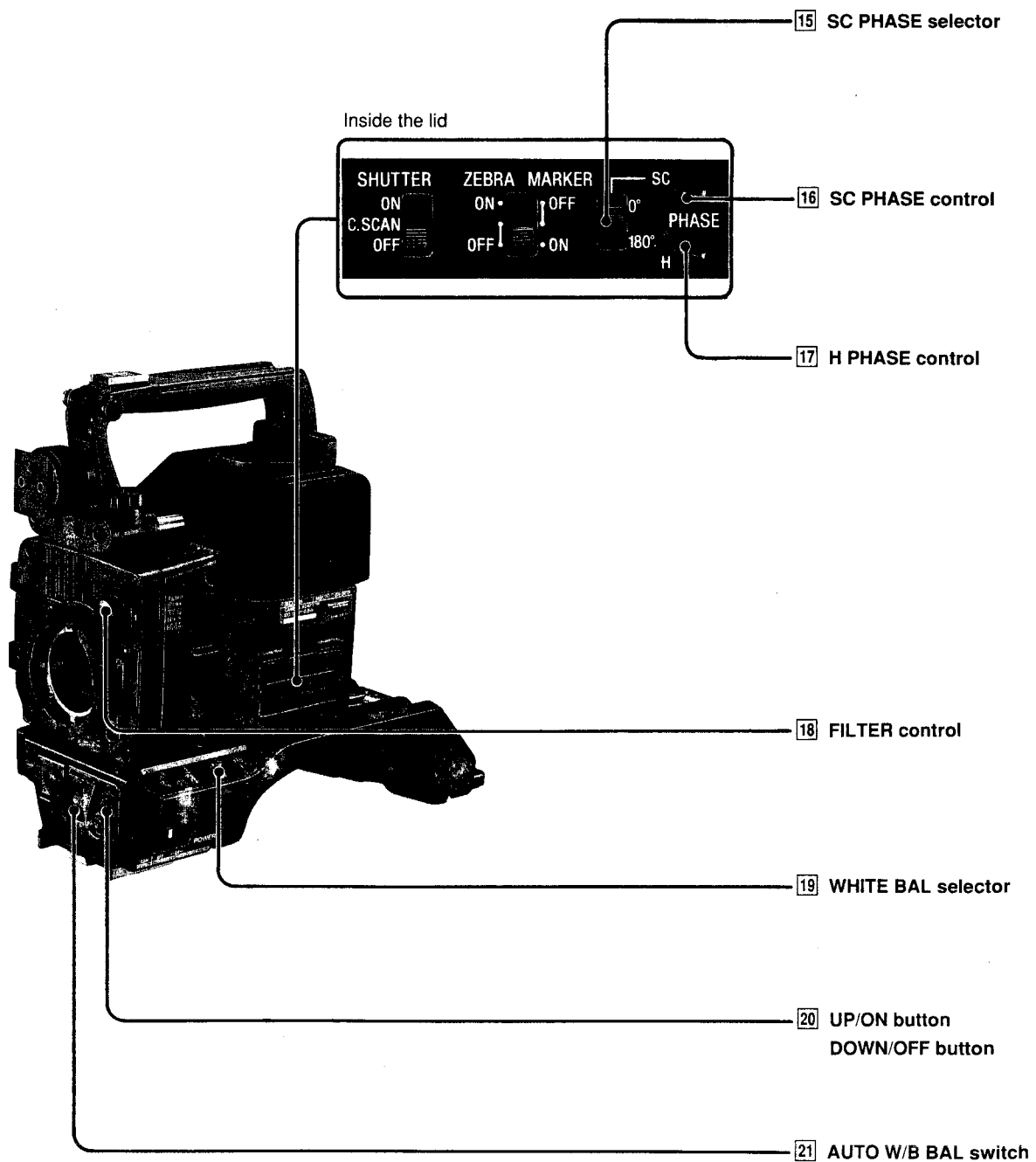
To check the picture of the camera you are shooting, connect to the input connector of a video monitor. Also you can connect to the video input of a VTR. Title characters displayed on the viewfinder screen output from this connector.

**14 DIN 50-pin connector**

Connect to the 50-pin connector of the camera adaptor or EVV-9000/9000P.



## Camera Head Switches and Controls



**15 SC (subcarrier) PHASE selector**

Switch this selector to 0° or 180° to roughly adjust the SC phase difference between the gen-lock input and the video output signals when using two or more cameras simultaneously. (See page 1-51.)

**16 SC (subcarrier\*) PHASE control**

Use a small screwdriver to fine tune the SC phase. Do this after roughly adjusting the SC phase using the SC PHASE selector (page 1-51). Do this adjustment when you are using two or more cameras simultaneously.

**17 H (horizontal) PHASE control**

Use a small screwdriver to adjust the H phase difference between the gen-lock input and video output signals. (See page 1-51.)

**18 FILTER selector**

Selects the appropriate filter according to lighting conditions.

**19 WHITE BAL (White balance memory) selector**

**A or B:** Select A or B to make the camera use the white balance setting stored in memory position A or B.

**PRE:** Set to PRE when there is no time to adjust the white balance. This function provides a factory-preset white balance value for a color temperature of 3200K for the selected FILTER selector position.

**20 UP/ON button and DOWN/OFF button**

Press either of these buttons with the DISP CHG switch to make one of the following six settings to:

- Ⓐ Set the title characters (See page 1-52.)
- Ⓑ Turn on/off the LOW LIGHT indication (See page 1-31.)
- Ⓒ Adjust the reference level of the automatic iris (See page 1-35.)
- Ⓓ Adjust the detail level (See page 1-48.)
- Ⓔ Adjust the master pedestal level (See page 1-41.)
- Ⓕ Adjust the shutter speed (See page 1-42.)
- Ⓖ Select CLEAR SCAN (See page 1-43.)

**21 AUTO W/B BAL (automatic white/black balance adjustment) switch**

Select "A" or "B" with the WHITE BAL selector, and push this switch to WHT to automatically adjust white balance. To automatically adjust black balance, push this switch to BLK. You can do this irrespective of the WHITE BAL selector setting. The setting value is stored in the camera's memory. When you release this switch, the switch returns to the center position automatically. (See pages 1-44 and 1-46.)

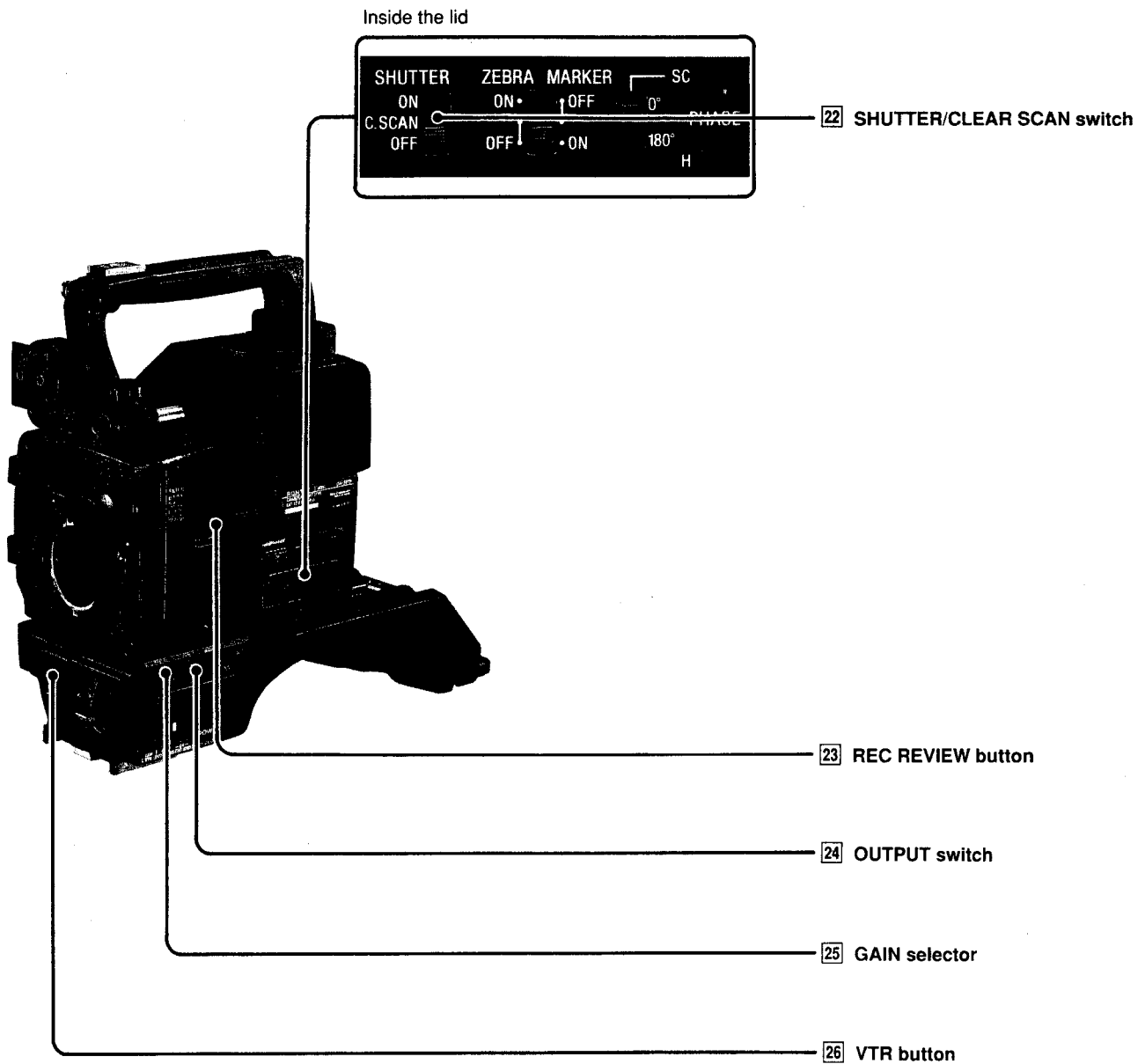
**WHT:** Select for automatic white balance.

**BLK:** Select for automatic black balance and black set level adjustment.

**\*Subcarrier**

Color information that is contained within a composite video signal. The signal amplitude is for color saturation (chromaticity) and its phase to color burst is for hue (color).

## Camera Head Output Selectors



**[22] SHUTTER/CLEAR SCAN switch**

Flip this switch to control the electronic shutter or operate the Clear Scan function.

**ON:** In the SHUTTER position, this switch activates the electronic shutter. To select the shutter speed, use the DISP CHG button and the UP/ON or DOWN/OFF button. (See page 1-42.)

In the CLEAR SCAN position, this switch activates the Clear Scan function. To change frequencies, press the UP/DOWN button (displayed in Hz). The frequency you select is stored in the camera's memory. The frequency selection ranges as follows:

NTSC: 60.4 to 101.1 Hz.

PAL: 50.3 to 101.1 Hz.

**OFF:** Push to this position to deactivate the electronic shutter and Clear Scan function.

**[23] REC (record) REVIEW button**

Press this button when using other format video cassette recorders with this camera to check the recorded picture while recording. (For details, refer to the operations manual for the other video cassette recorder.)

**OUTPUT switch**

**[24]** Flip this switch to transfer the video signal output to the VTR, viewfinder, and the video monitor, or to transfer the color bar signal to the camera output or vice-versa.

**BARS:** A SMPTE type (for the DXC-537) or EBU (for the DXC-537P) color bar signal is output.

Note that with the SMPTE type, the I and Q signal in the color bars is replaced by black.

For example, use this setting for the following purposes:

- Adjusting the video monitor.
- Recording the color bar signal.

**CAM:** The video signal from the camera is output.

**[25] GAIN selector**

Select a higher setting to lighten dark pictures. When the picture is dark though the iris is open, use this selector.

**0 dB:** Normal setting.

**9 dB:** Raises the video output level by 9 dB.

**18 dB:** Raises the video output level by 18 dB.

**[26] VTR button**

• **When connecting the camera to a portable VTR:**  
Press this button to start and stop recording.

• **When connecting the camera to a CCU-M7/M7P or CCU-M3/M3P:**

Keep this button depressed to monitor the return video pictures on the viewfinder. Release it to monitor the camera pictures.

## Accessory Attachment

### Attaching/Detaching a Hi8 Format Videocassette Recorder

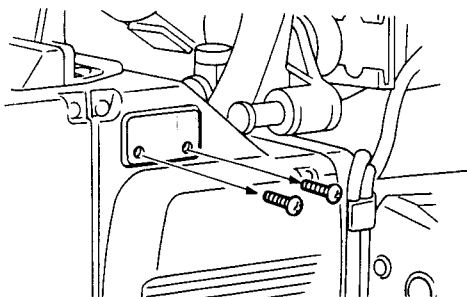
To attach an EVV-9000/9000P Hi8 Format Videocassette Recorder to the camera head follow the above procedures for attaching and detaching the CA-537/537P Camera Adaptor.

Refer to the EVV-9000/9000P operations manual for instructions on how to operate the videocassette recorder with the camera head.

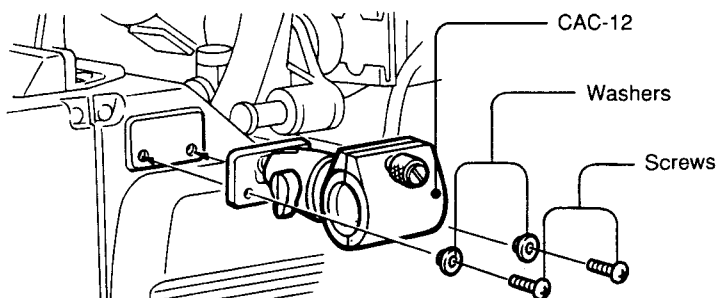
### Attaching a Microphone

In order to attach an ECM-672 External Microphone (optional), first fit a CAC-12 Microphone Holder (optional) to the camera head.

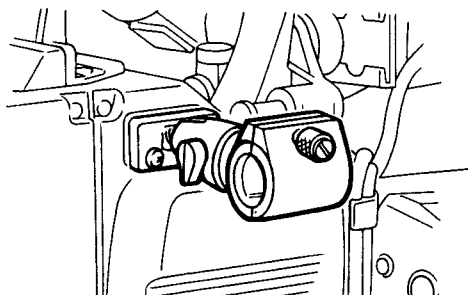
- 1 Remove the two screw from the side of the camera head above the words "SONY".



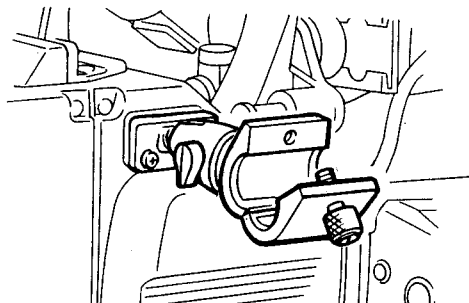
- 2 Using the screw removed in Step 1, attach the CAC-12 Microphone Holder.



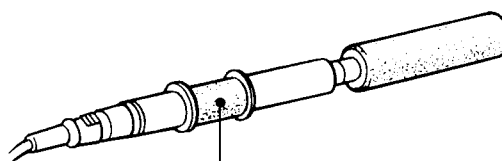
- 3 Loosen the microphone holder bolt.



- 4** Open the microphone holder.



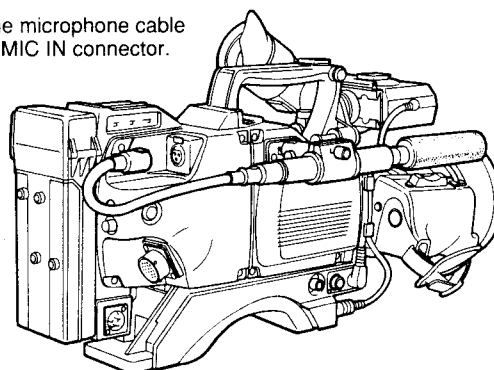
- 5** When using a bayonet (thin) type microphone, attach a microphone adaptor to the microphone.



Microphone Adaptor  
(When you use the ECM-672 Microphone, the microphone adaptor is not necessary.)

- 6** Insert the microphone into the microphone holder, close the holder and tighten the bolt.

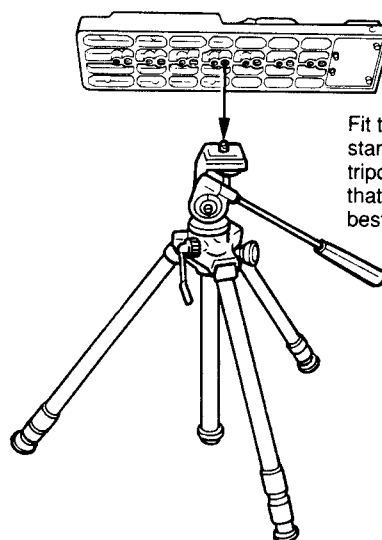
Insert the microphone cable into the MIC IN connector.



## Attaching/Detaching a Tripod

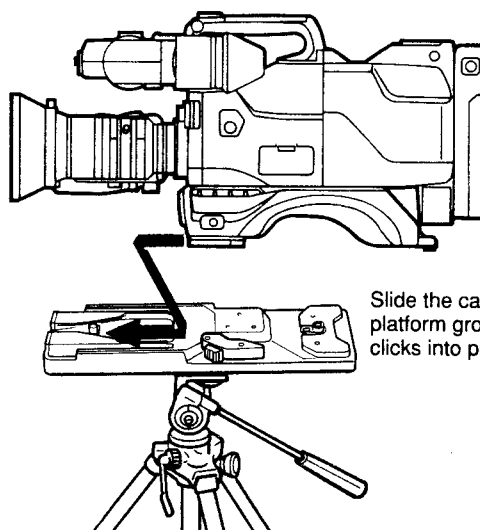
The fully loaded camera may be mounted directly onto a tripod. However, for a more secure operation, fit the camera to a VCT-14 tripod platform before attaching it to a tripod stand.

- 1 Attach the tripod adaptor to the tripod.



Fit the screw at the top of the tripod stand into one of the holes in the tripod platform. Choose the hole that fits the screw and gives the best balance to the unit.

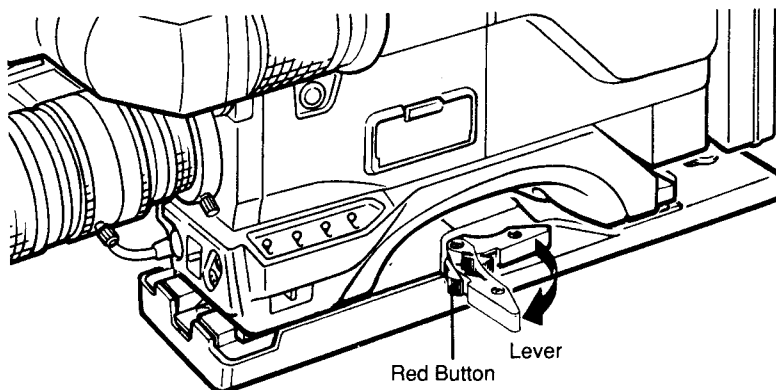
- 2 Mount the unit on the tripod adaptor.



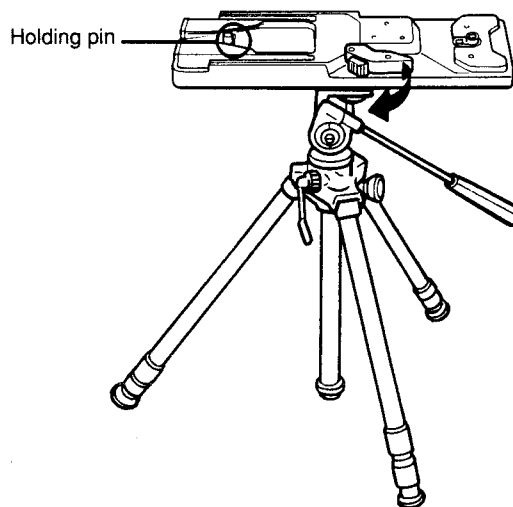
Slide the camera forward along the platform groove until the camera clicks into place.

## Detaching the Camera from the Tripod

- 1** While pressing the red button, push the lever in the direction indicated by the arrow and detach the camera from the platform.



- 2** Make sure the holding pin has dropped back to its stowed position after removing the camera. Otherwise, you cannot remount the video camera to the tripod platform. To make sure the holding pin goes to its stowed position, press the red button against the lever and then move the lever in the direction of the arrow until the pin drops down.





## Connections

This section shows you how to connect an S-VHS format portable VTR, regular portable VTR, table-top VTR and camera control unit to the camera head. Depending on the type of VTR connected, the VTR settings, power supply, and camera you choose, functions may vary.

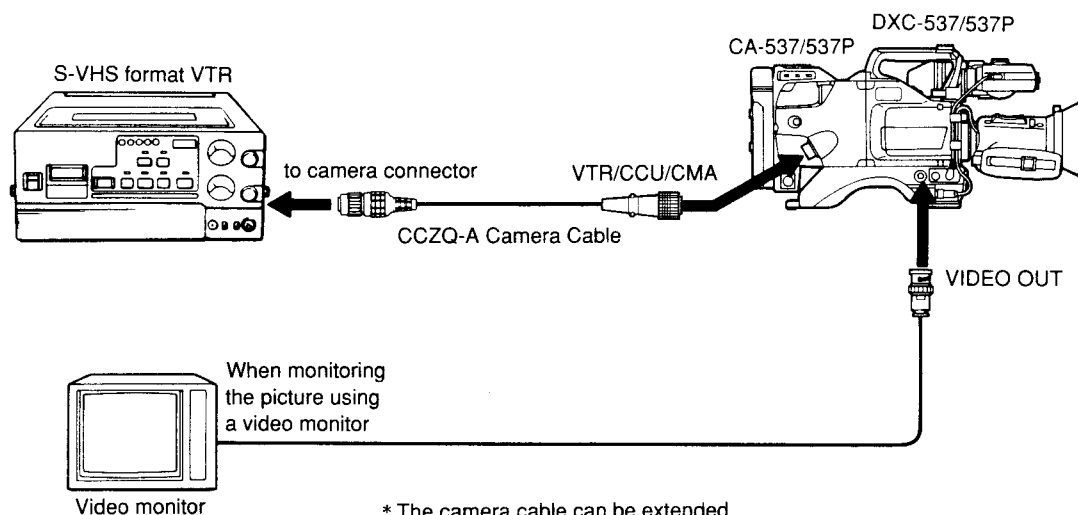
Consult the "VTR-Camera Function Table" on page 1-23 for details on the functions available with different VTRs. For the general use of the camera with a VTR attached, see "Basic Videotaping Operations" on page 1-27.

### Before You Begin

Make sure the power switches on the camera, VTR, and other equipment are set to OFF.

Attach the CA-537/537P Camera Adaptor to the camera head before attaching any of the below equipment.

## Connecting an S-VHS Format Portable VTR



**1** Following the diagram, insert an optional CCZQ-A Camera Cable into the camera connector on the VTR.

**2** Insert the other end of the cable into the VTR/CCU/CMA 26-pin connector on the CA-537/537P Camera Adaptor.

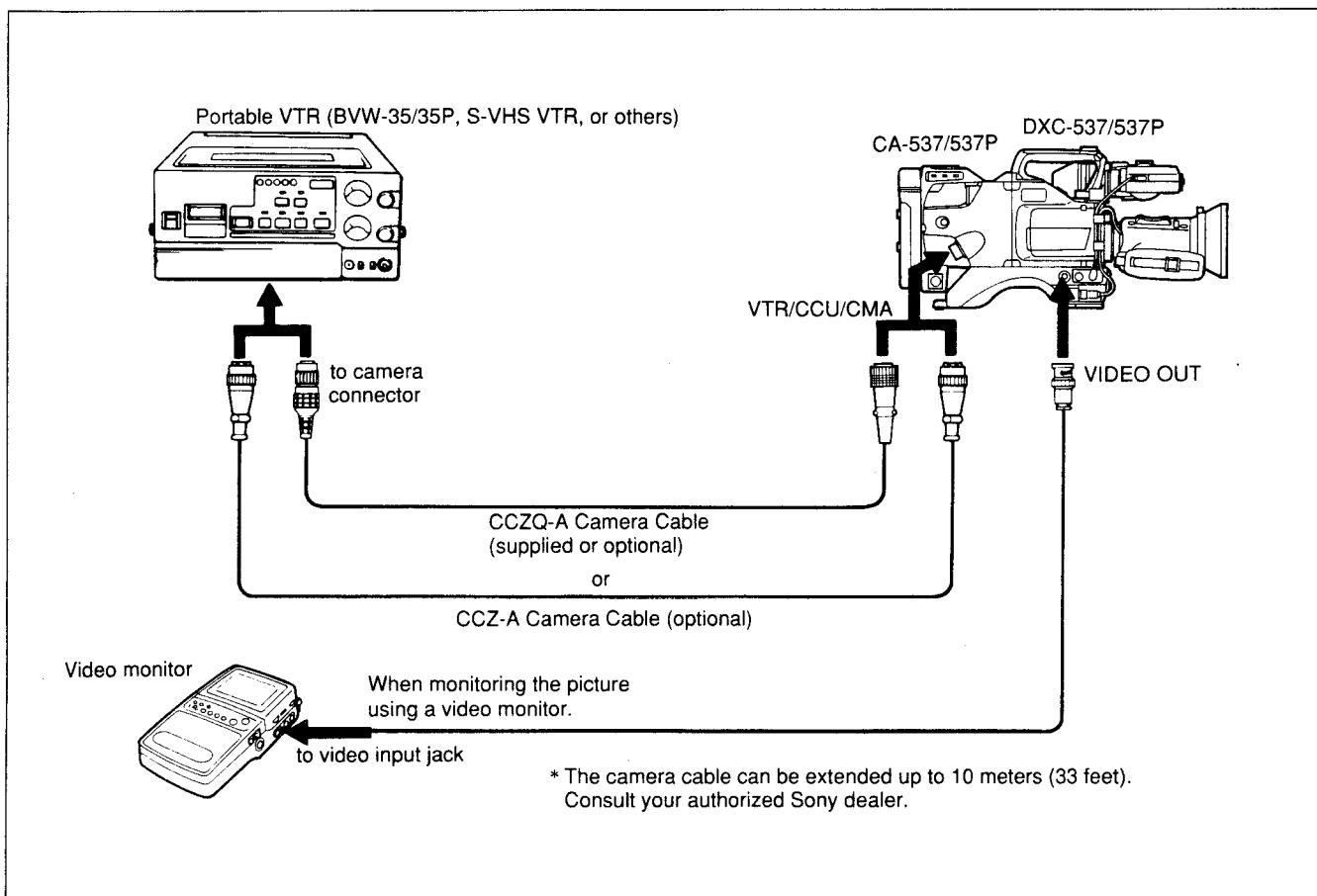
**3** When monitoring the camera image on a video monitor, insert one end of a coaxial cable into the VIDEO OUT connector on the camera head and the other end into the Video Input connector on the monitor.

## Connecting a Portable VTR with Y/C Separate Input

- 1** If the monitor and VTR have S-type video connectors, connect a cable between the S-type video output jacks of the VTR and the S-type input jacks of the monitor.  
Or, make the connection between the VIDEO OUT connector on the camera and the In connector on the monitor.
- 2** When connecting the SP-Umatic VTR-8800/8800P or S-VHS format portable VTR to the CA-537/537P Camera Adaptor, set the OUTPUT selector on the camera adaptor to position 3.

## Connecting a Portable VTR

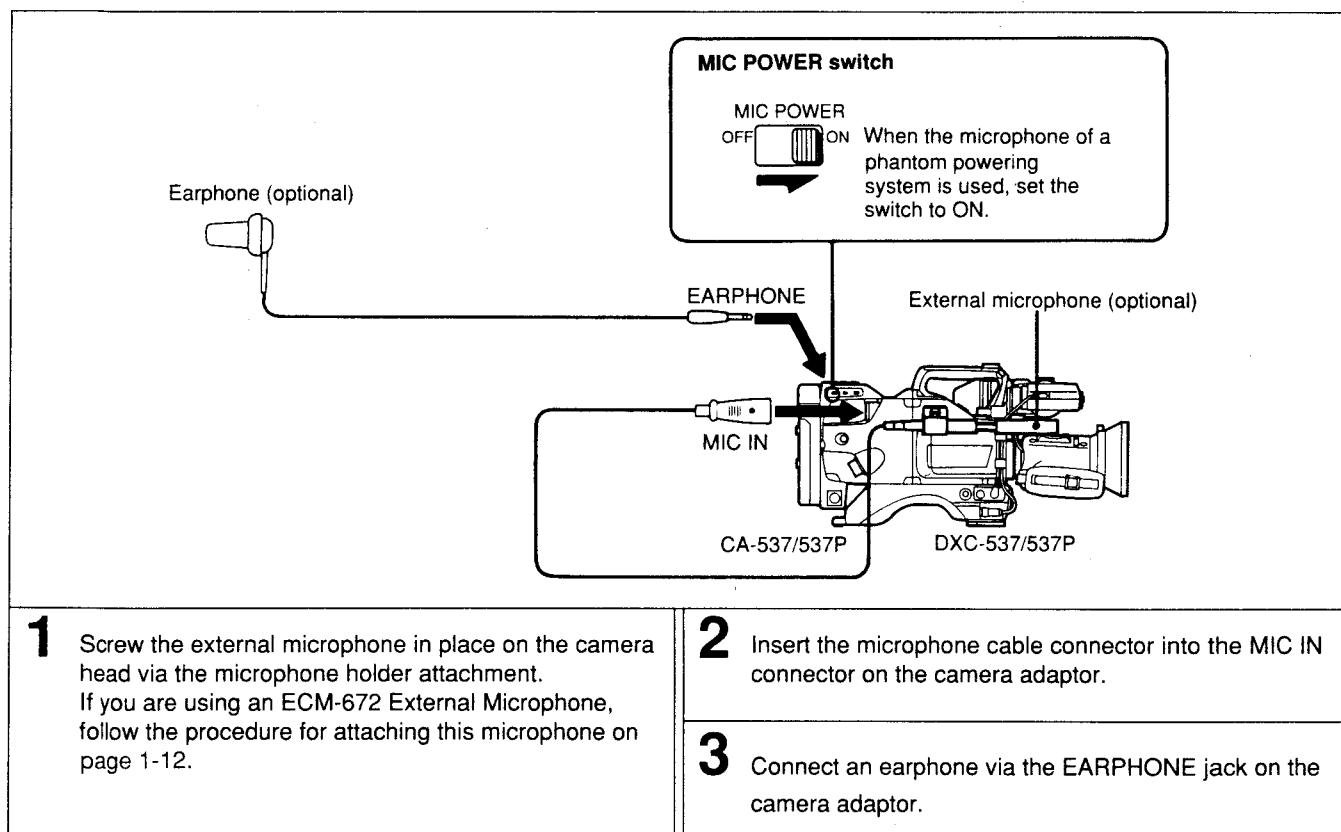
Looking at the diagram below, follow the same procedure as in "Connecting an S-VHS Format Portable VTR" on page 1-16.



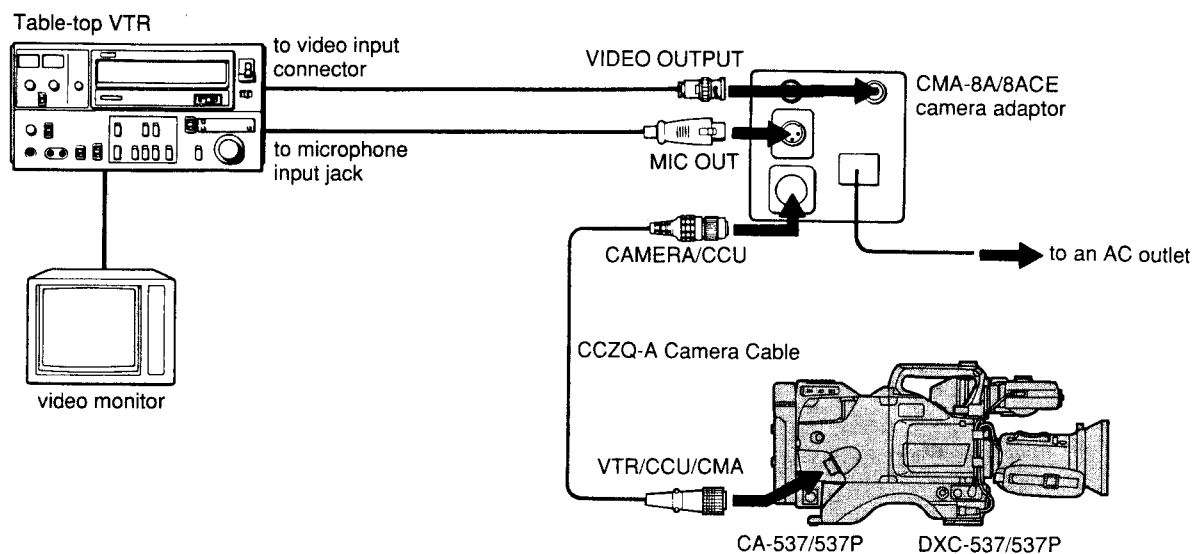
## Making Connections for Simultaneous Sound Recording

To make a simultaneous sound recording and to avoid recording noise made while handling the camera, connect an external microphone to the MIC IN connector on the camera adaptor (see figure below).

With the below connections, note that the built-in microphone automatically shuts off.



## Connecting a Table-Top VTR

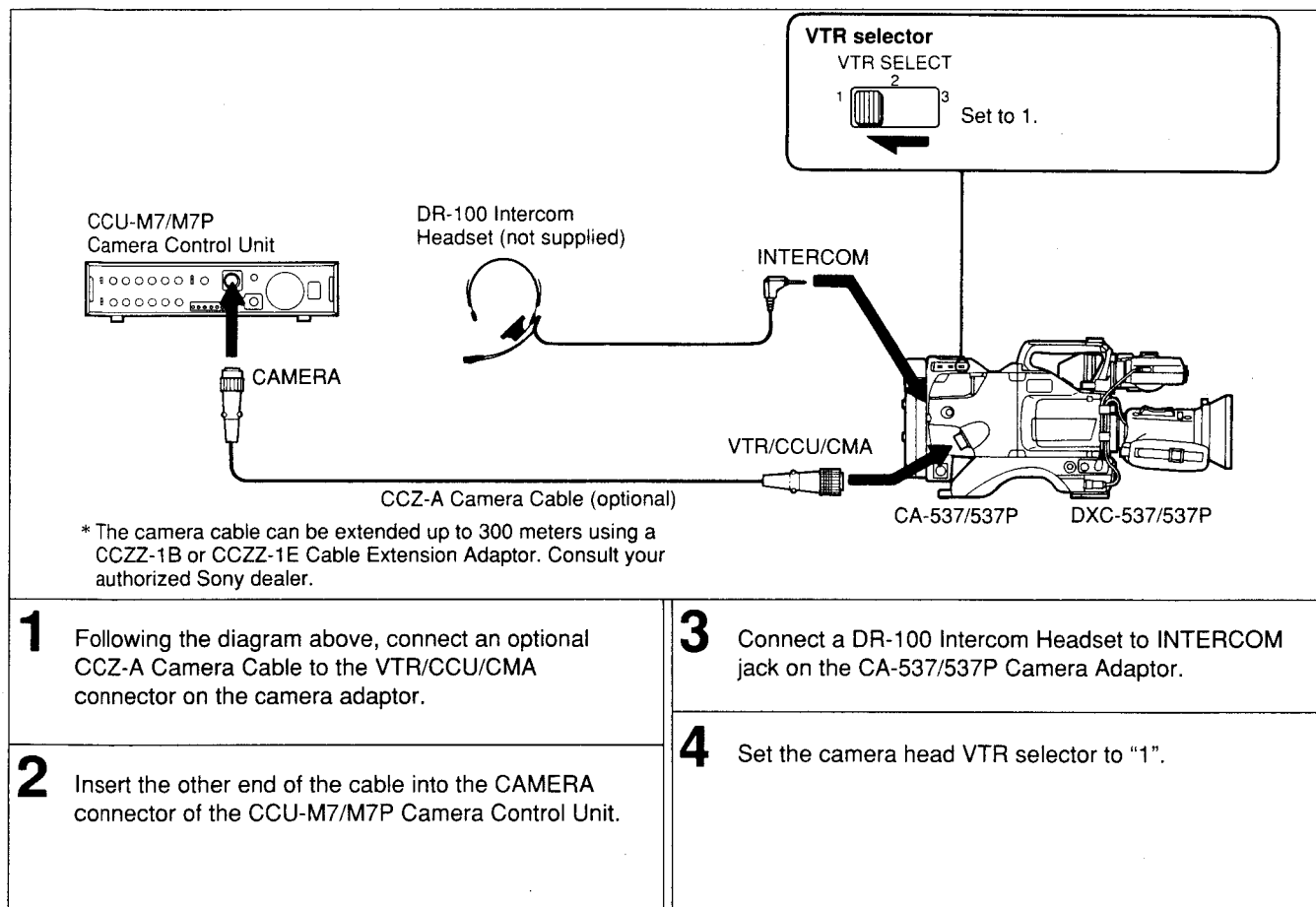


\* The camera cable can be extended up to 10 meters (33 feet).

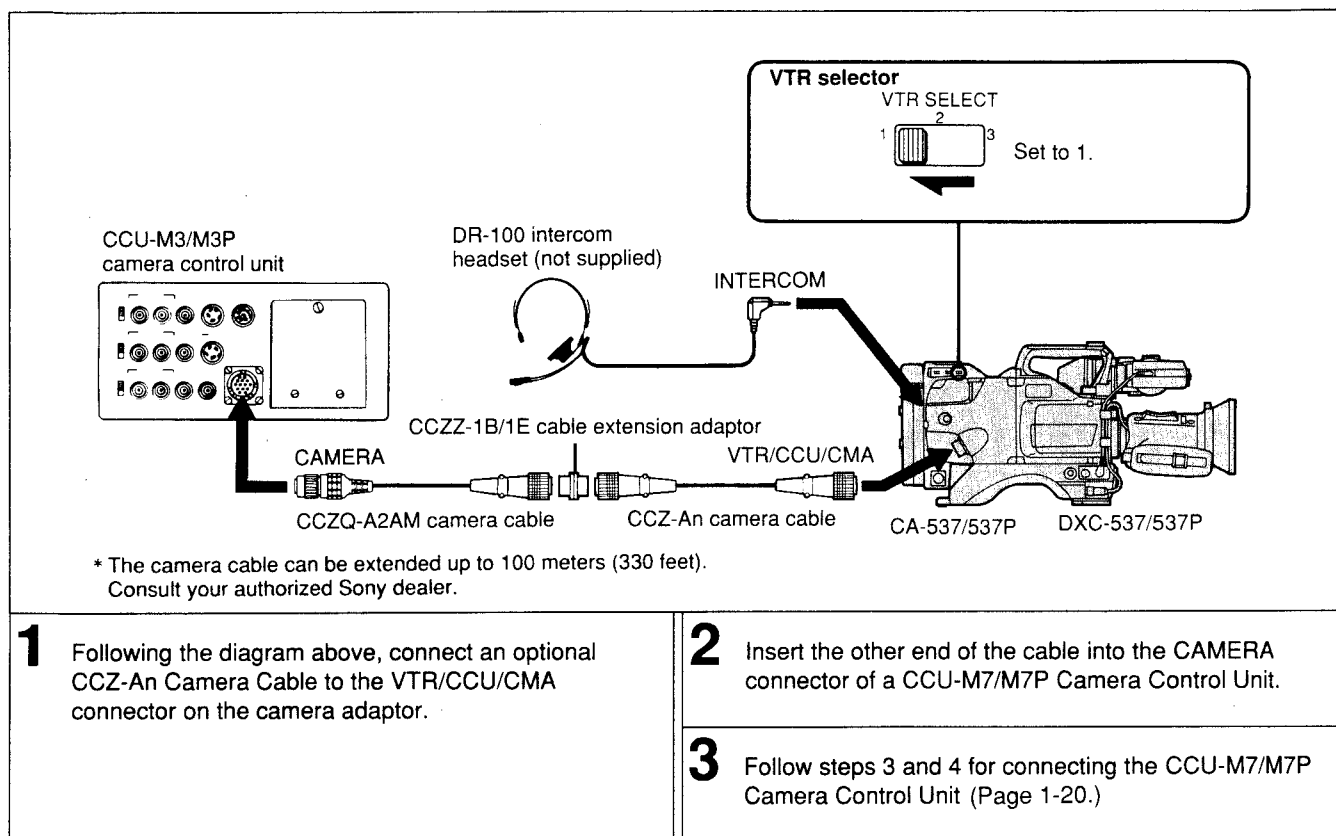
- |                                                                                                                                                |                                                                                                                                 |
|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| <p><b>1</b> Following the diagram above, insert an optional coaxial cable into the video input connector on the VTR.</p>                       | <p><b>4</b> Insert a CCZQ camera cable into the CAMERA/CCU connector on the CMA-8A/8ACE Camera Adaptor.</p>                     |
| <p><b>2</b> Insert the other end of the coaxial cable to the VIDEO OUTPUT connector on the CMA-8A/8ACE Camera Adaptor.</p>                     | <p><b>5</b> Insert the other end of the CCZQ cable into the VTR/CCU/CMA 26-pin connector on the CA-537/537P Camera Adaptor.</p> |
| <p><b>3</b> Insert a cable into the microphone input jack on the VTR and the other end into the MIC OUT on the CMA-8A/8ACE Camera Adaptor.</p> | <p><b>6</b> Connect one end of a power cable to the CMA-8A/8ACE Camera Adaptor and the other end to an AC power outlet.</p>     |

## Connecting a Camera Control Unit

### Connecting the CCU-M7/M7P Camera Control Unit



## Connecting the CCU-M3/M3P Camera Control Unit



### Inoperable Camera Head Functions with the CCU-M7/M7P or CCU-M3/M3P Connected

- When the camera is connected to the CCU, the following switches on the camera head do not operate:
  - GAIN selector
  - WHITE BAL selector
  - H PHASE control
  - SC PHASE control
  - SC phase selector
- The MIC IN connector on the camera adaptor cannot be used as an external microphone input.

### White/Black Balance with the CCU-M3/M3P Connected

- When the W/B BALANCE selector on the CCU is set to PRESET or MANUAL, the CCU adjusts the white balance and takes priority over the setting done on the camera.
- If the W/B BALANCE selector is set to AUTO, the white balance can be adjusted using either the camera or CCU controls.
- Do automatic black balance adjustments by setting the W/B BALANCE selector on the CCU to AUTO or PRESET, and the AUTO W/B BAL switch on the camera to BLK.

### Gamma and Knee Controls with the CCU-M7/M7P Connected

When the camera is connected to the CCU-M7/M7P, the GAMMA controls and KNEE controls of the CCU-M7/M7P do not affect the video output signal of the camera. However, the setting value of the GAMMA and KNEE level on the monitor screen change.

### Shutter and Clear Scan Control with the CCU-M3/M3P Connected

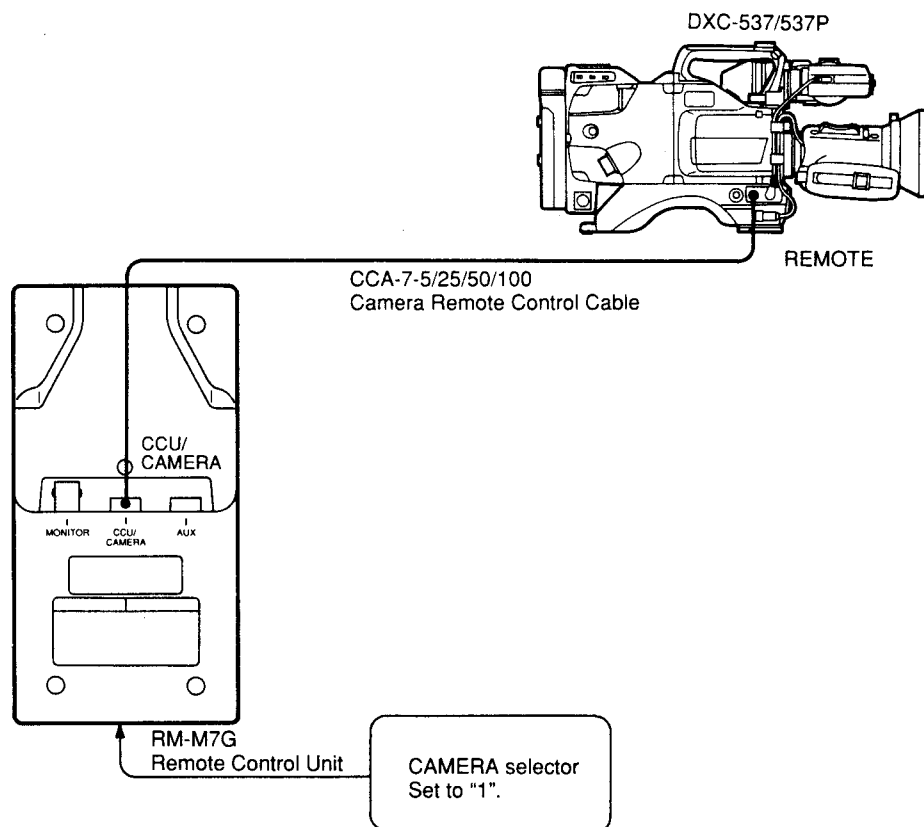
When the camera is connected to the CCU-M3/M3P, control the shutter and Clear Scan functions from the camera head.

### Clear Scan Control with the CCU-M7/M7P Connected

When the CCU-M7/M7P is connected to the camera, control the Clear Scan function from the camera head.

## Connecting a Remote Control Unit

By connecting an RM-M7G Remote Control Unit (optional), you can control the principal camera functions at a distance. For more details on using the remote control, consult your Sony dealer.



**1** Connect the CCA-7-5/25/50/100 Camera Remote Control Cable to the REMOTE connector on the camera head.

**2** Connect the other end of the cable to the CCU-CAMERA connector on the remote control unit.

**3** Set the CAMERA selector on the RM-M7G Remote Control unit to "1".

### Gamma and Knee Controls with the RM-M7G Connected

When the camera is connected to a RM-M7G, the GAMMA and KNEE controls of the RM-M7G do not affect the video output signal of the camera.

### Clear Scan Control with the RM-M7G Connected

Control the Clear Scan function from the camera head when the RM-M7G Remote Control Unit is connected.

## Using the Camera with a VTR

Set the VTR selector switch on the camera adaptor (at the top of the camera adaptor) to "1", "2" or "3" depending on your VTR (see the VTR-Camera Function Table below).

Depending on the VTR connected to the camera, the functions of the camera and the VTR vary. (Please consult your local authorized Sony dealer if you want to use a VTR other than those shown in the table below.)

**VTR-Camera Function Table**

VTR selector	Micro-phone level	Connected VTR	Remote control of VTR start/ stop	REC indicator		BATT alarm indication	Audio monitor (on the camera)	Picture shown on the viewfinder		Cable for connection	Power supply from VTR to camera (See note 1.)	AC power adaptor for VTR	
				REC indication	VTR alarm			During recording (picture from the camera)	During play-back (picture from the VTR)				
1	-60 dB (See note 2.)	BVW-35 BVW-35P	Yes	Yes	Yes	Yes	Yes	Yes	Yes	CCZ-An	Yes	AC-500 AC-500CE	
		BVU-150 BVU-150P								CCZQ-nA			
		VO-6800 VO-6800PS											
3	-60 dB	VO-8800 VO-8800PS			No	No	No			CCZJ-2	No	CMA-8A CMA-8ACE	
2	-20 dB	AG-6400 (Panasonic)					Yes			CCZQ-nA			
3	-20 dB	AG-7400 (See note 4.) (Panasonic)					Yes		Yes (See note 3.)				

### Notes on the Camera Function Table

- For VTRs with a "No" in the "Power Supply from the VTR to Camera" column, the power supply from the VTR is insufficient to operate the camera. Therefore, an independent power source must be provided for the camera.
- A picture from a VTR can be seen only when you press the RET button on the zoom lens.
- To use the AG-7400 VTR, the VTR selector switch must be set to "3" on the camera adaptor for normal (color) recording.

#### Caution

If the camera is operated without being powered independently, heat will build up in the VTR or AC power adaptor, and the safety circuit will activate. This will prevent the VTR or AC power adaptor from operating properly.

- When the VO-6800/6800PS Portable VTR is connected to the camera, set the -20 dB/-60 dB camera microphone input selector on the VTR to -60 dB.

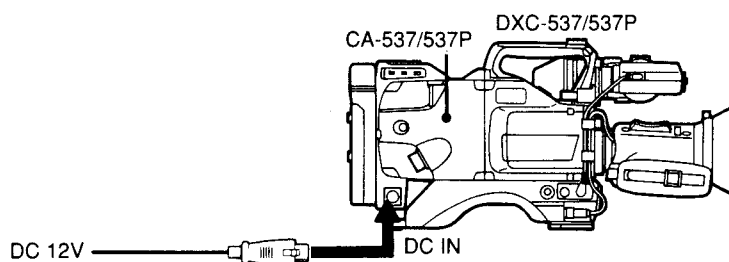


## Power Sources

When the CA-537/537P Camera Adaptor is attached, the DXC-537/537P camera is powered by one of three types of power supply: external DC, battery DC, or AC power.

### Using a DC Power Supply

#### Connecting to a DC power outlet



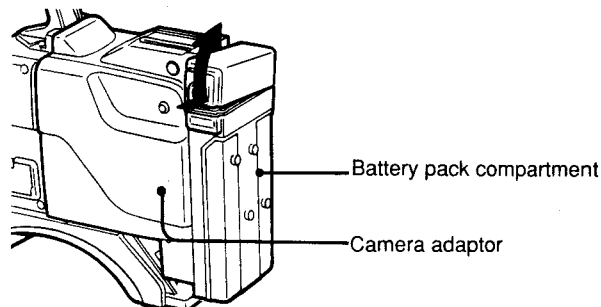
- 1** To use an external DC (12V DC) power supply, attach a CA-537/537P Camera Adaptor to the camera head.
- 2** Connect a connecting cable from the DC IN connector on the camera adaptor to the external DC power source.

### Using a Battery Pack

Before using the battery pack, recharge the battery (see “Charging the Battery” below).

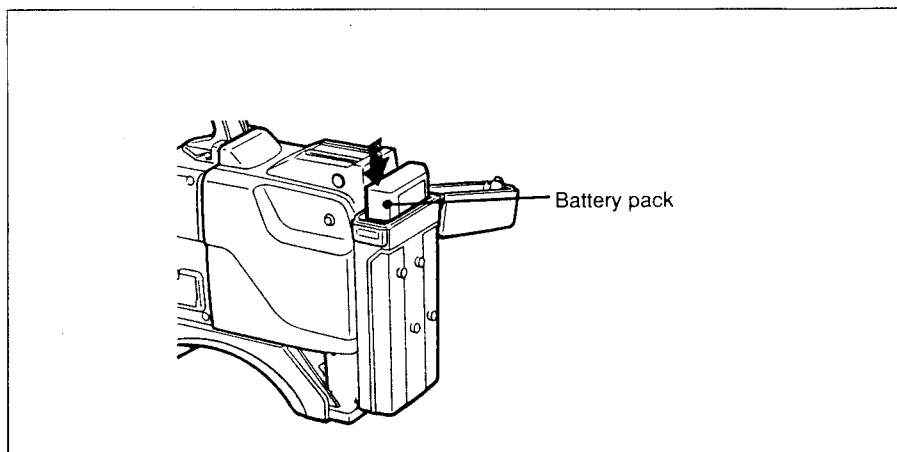
#### Installing the Battery Pack

- 1** Press the button at the side of the battery case lid and pull open the lid.



**2**

Slide the battery into the battery case with the arrow on the battery pack pointing downward.



### Continuous Battery Operation Time

When a camera adaptor is attached, the fully charged battery pack can continuously power the camera and viewfinder for a certain amount of time (see the table below). However, with the EVV-9000/9000P Videocassette Recorder attached, battery life is shortened.

### Battery Life

Battery Type	Battery Life with CA-537 installed	Battery Life with EVV-9000 installed
NP-1B	About 110 minutes	About 75 minutes
NP-1A	About 85 minutes	About 55 minutes

### Battery Life Warning

When the battery is nearly exhausted, the warning "BATT.XX.X V" appears on the viewfinder screen showing the voltage level in the "XX.X". If you continue to operate the equipment without changing the battery, the BATT indicator of the viewfinder also lights up to indicate that the battery must be replaced immediately.

### Charging the Battery

Recharge the battery pack before each use using the battery charger shown in the table below.

### Battery Chargers

Battery pack	Battery charger	Charging time
NP-1B	BC-1WB	About 95 minutes
NP-1A	BC-1WB	About 70 minutes
	BC-1WA	About 70 minutes

## Using Power Supplied Through the Camera Adaptor

To use the following equipment, make sure you have attached a CA-537/537P Camera Adaptor.

### Using a Portable VTR

**1** Align and insert one end of the optional CCZQ Camera Cable into the VTR/CCU/CMA connector on the camera adaptor, and the other end into the VTR 14-pin Q-type camera connector on the VTR.

**2** If the camera system is to be powered by a battery pack, check the battery level by turning on the VTR and camera and looking at the BATT indicator in the camera viewfinder.

See the connecting diagram for "Connecting a Portable VTR" (page 1-17.)

### Using a Camera Control Unit

**1** Align and insert one end of the optional camera cable into the VTR/CCU/CMA connector on the camera adaptor and the other end into the CAMERA connector on the camera adaptor.

**2** If the camera system is to be powered by a battery pack, check the battery level by looking at the BATT indicator in the viewfinder.

See the connecting diagram for "Connecting a Camera Control Unit" (pages 1-20 and 1-21.)

For details on power sources for the CCU, refer to the CCU operations manual.

## Using a CMA-8A/8ACE Camera Adaptor

Align and insert one end of the optional CCZQ-A camera cable into the VTR/CCU/CMA connector on the camera adaptor, and the other end into the CAMERA/CCU connector on the CMA-8A/8ACE.

For details, refer to the connecting diagram for "Connecting a Table-Top VTR" (page 1-19).

## Priority of Power Sources

When two or three power sources (1 to 3 below) are simultaneously connected to the camera, the camera operation only uses one of the power supplies according to the numerical priority listed below (starting with DC power first). The other power sources are automatically cut off.

Type of Power (Priority)	supplied (on the camera adaptor) via the
1. DC power	DC IN connector
2. NP-1B or NP-1A battery	Battery Pack compartment
3. AC power	VTR/CCU/CMA connector

When the EVV-9000/9000P Hi8 is attached, the camera operates on one of the two types of power sources according to the numerical priority listed below.

Type of Power (Priority)	supplied (on the VTR) via the
1. DC power	DC IN connector
2. NP-1B or NP-1A battery	Battery Pack compartment

## 1-3. OPERATIONS

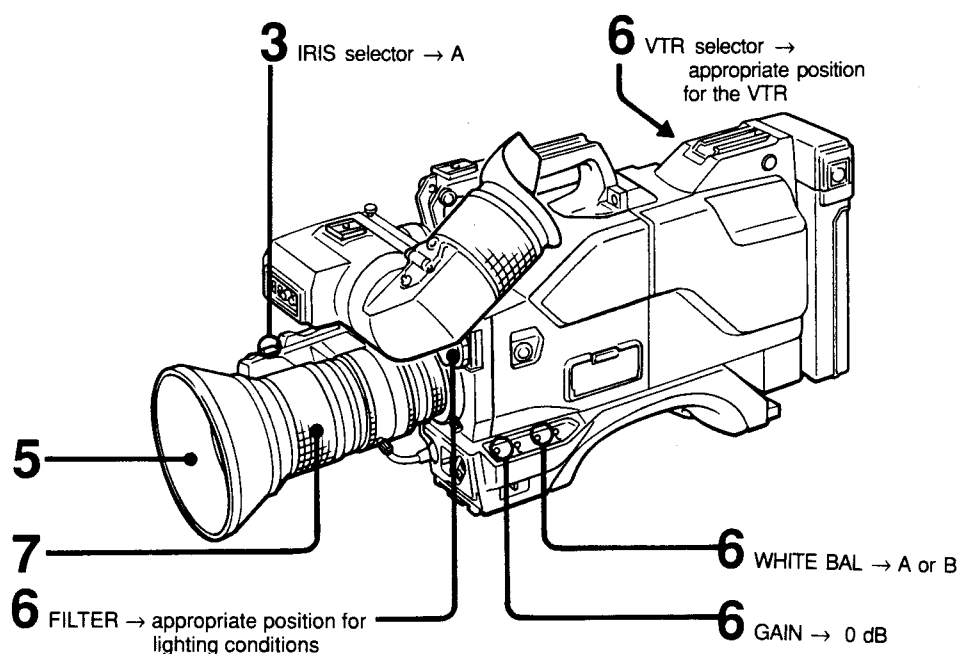
### Basic Videotaping Operations

The following is the basic procedure for operating the camera. To get the most out of the videotaping operation, we recommend you do the adjustments and settings on the following pages.

#### Before You Begin

Make sure that the power supplied from the VTR to the camera is sufficient. If the power supply capacity of the VTR is not sufficient, the camera must be powered independently.

### Operating the Camera



**1** Check that equipment connections, such as to the VTR, are correct (see pages 1-16 to 1-22).

**2** Turn the power switches to the camera and the all the connected equipment to the ON position.

**3** Set the IRIS selector on the zoom lens to "A" (see page 1-35).

**4** Select the appropriate position for the FILTER selector for the ambient lighting (see page 1-37).

**5** Remove the lens cap.

**6** Set the following switches:  
 GAIN switch → 0 dB  
 WHITE BAL selector → A or B (see page 1-39)  
 VTR selector (on the camera adaptor) → corresponding to the VTR used

**7** Point the camera at an object that is at least one meter (3-1/2 feet) from the lens.

**8** Adjust the focus by turning the focus ring while looking at the image on the monitor or viewfinder screen.

## Recording with a Portable VTR

- 1** Turn the power switches on the camera and connected equipment to the ON position.
- 2** Set the VTR to Record Standby mode.
- 3** Adjust the black balance and white balance. (For details on how to do this, see "Adjusting the Black Balance," page 1-37 and "Adjusting the White Balance," page 1-39.)
- 4** Point the camera at a reference object and adjust the lens.  
Adjust the  
Iris (see page 1-35)  
Zoom (see page 1-45)  
Close-Up Function (see page 1-47)  
Focus (see page 1-46)
- 5** To start recording, press the VTR button on the camera, the VTR START/RETURN VIDEO button on the camera adaptor, or the VTR button on the lens.  
  - The REC/TALLY indicator in the viewfinder lights up during recording.
  - The return video and playback picture appear on the viewfinder screen display.
- 6** To stop recording, press the VTR START/RETURN VIDEO button or the VTR button used in Step 5 above.

## Recording with a Table-Top VTR

To record using a Table-Top VTR, follow the procedure explained above for recording with a portable VTR;

Step 5

Start and stop recording using the function buttons on the VTR.

- The REC/TALLY indicator in the viewfinder does not function.
- The return video and the playback picture cannot be monitored on the viewfinder screen.

### The BATT Indicator May Light Up When the Camera Goes On

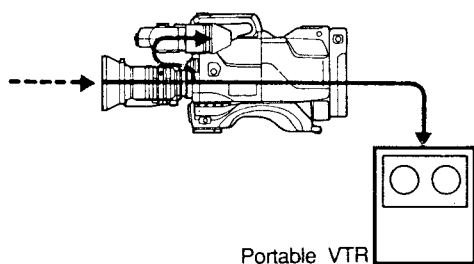
For a brief period after the camera has been turned on, the BATT indicator of the viewfinder may light up and random characters may be displayed on the viewfinder screen. This is not a malfunction.

## Monitoring the VTR Picture and Audio Output

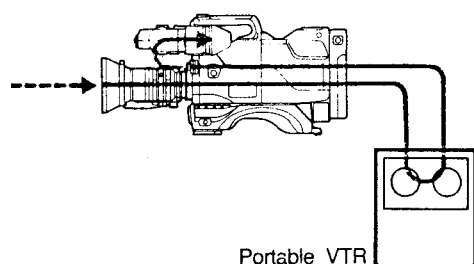
### Monitoring the VTR Picture

You can see the following three types of images on the viewfinder screen when the camera and the VTR are connected with the CCQ camera cable. Note, however, that with some types of VTR, you may not be able to monitor a picture. (For more details on the pictures which can be seen on the viewfinder screen, see the "VTR Function Table" on page 1-23).

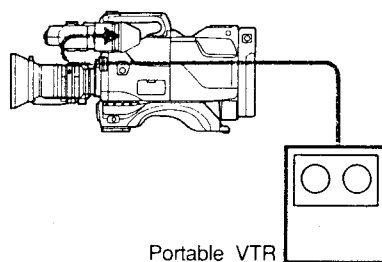
#### A picture picked up by the camera (during recording)



#### An E-E (return video) mode picture from the VTR (when the RET button on the lens is pressed during recording)



#### A playback picture (during playback)



### Monitoring the Audio Output

You can monitor the audio signal during recording and reviewing by connecting an earphone to the EAR jack on the camera adaptor. Note, however, that with some types of VTR, you may not be able to monitor the audio output.

#### Noise on the Monitor

While the playback picture from the VTR displays on the viewfinder screen, some of the video signals output from the camera such as the sync signal, may mix with the playback picture so that streaks of noise roll horizontally or vertically across the screen.

## Reading Indications in the Electronic Viewfinder

In the electronic viewfinder, the viewfinder screen itself shows you the settings of switches such as black/white balance and gain. At the periphery of the screen the

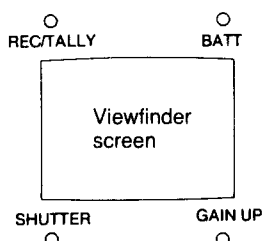
viewfinder indicators show the status of operations such as battery level.

## Reading Status Indicators on the Viewfinder

Four indicators (see illustration below) correspond to the status of the camera and connected equipment. The illustration and table below show the location of the indicators on the periphery of the viewfinder screen and what they indicate.

The indicators are active or inactive depending on what is connected to the camera or what state the camera itself is in.

### Viewfinder Screen and Status Indicators



Indicator	Operates. . .	Flashes	Lights Continuously
REC/ TALLY	While recording using a VTR connected with a CCQ cable	Until the VTR enters the standby mode	During recording
	While using a VTR (equipped with a warning system), which is connected with a CCQ cable	While the VTR is malfunctioning	—
	While using the CCU-M3/M3P	—	When a tally signal is transmitted from a video switcher, etc.
BATT	When the camera is powered by the battery pack	—	When the battery power becomes weak.
	When a VTR is connected to the camera When the CCU is connected to the camera*	When the battery power becomes weak.	If you keep on operating the connected equipment after the indicator starts flashing.
SHUT- TER	Any time	—	When the SHUTTER or CLEAR SCAN switch of the camera is set to ON.
GAIN UP	Any time	—	When the GAIN selector is set to 9 dB or 18 dB

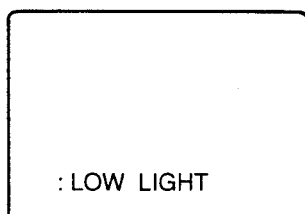
\* The indicator's flashing speed denotes the following:

Slow: The battery is weak.

Fast: The camera control units' switches and controls are being used.

## Reading Warning Indications on the Viewfinder Display

Two indications, "LOW LIGHT" and "BATT. 10.7V" appear on the viewfinder display screen. The following explains what they mean and some possible remedies to the problems they indicate.



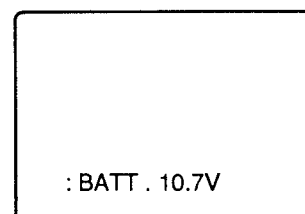
**Meaning**  
**Remedy**

- Lighting is insufficient.
- Increase the ambient lighting.
  - Open the iris manually or activate the automatic iris function.
  - Select an appropriate filter.
  - Set the GAIN selector to 9 dB or 18 dB.

It is possible to switch the "LOW LIGHT" indication on or off.

On: Press the UP/ON button when the character display is in the current camera setting (see next page) mode.

Off: Press the DOWN/OFF button when the character display is in the current camera setting (see next page) mode.



**Meaning**  
**Remedy**

The input voltage to the camera is about 10.7 volts.

Replace the battery with a fully charged one.

If you continue recording with a weak battery, the quality of the recording will deteriorate.



## Adjustments and Settings

This section explains the screen display itself, the procedures for making adjustments to the current switch

settings, the video monitor, and regular camera operations such as filter, iris, contrast and shutter speed settings.

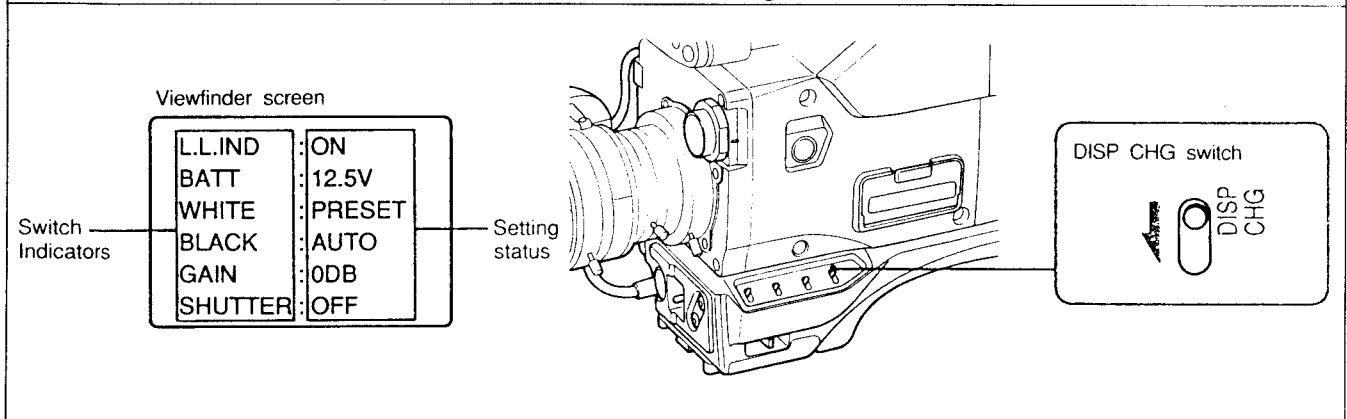
## Recognizing the Current Settings

The viewfinder screen shows you the settings of the switches on the camera head, camera adaptor, and zoom lens. If necessary, change the settings using the procedures described in this section and the table below.

Press the DISP CHG button several times until the following (see illustration below) display appears on the viewfinder screen.

The following table explains the meanings of the below screen display items.

### Viewfinder Menu Display Items and Their Meanings



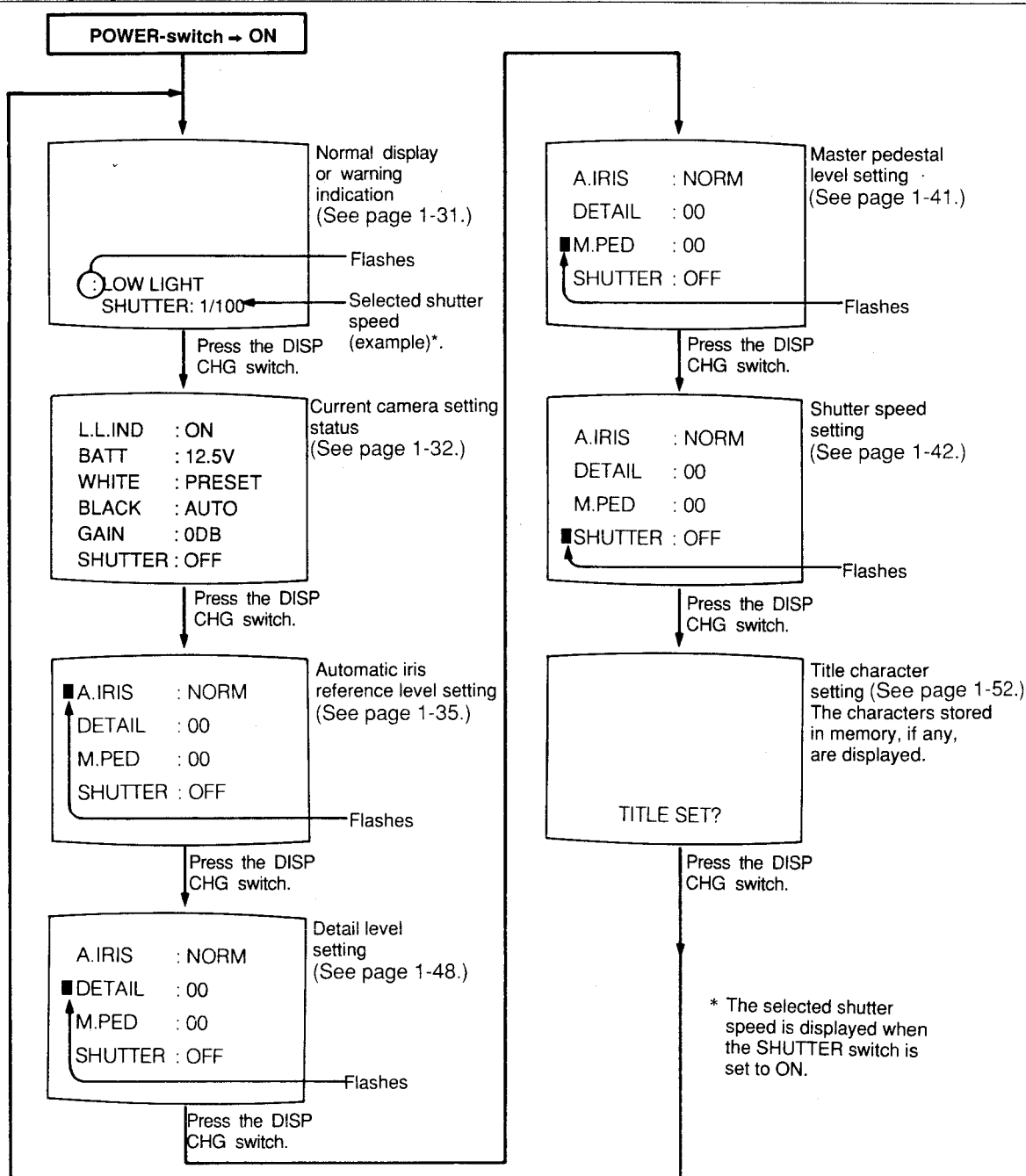
Switch Indicators	Meaning	Setting status	Meaning
L.L. IND	Setting the "LOW LIGHT" indication	ON	"LOW LIGHT" is displayed.
		OFF	"LOW LIGHT" is not displayed.
BATT	Battery voltage	XX.XV	The battery voltage level is displayed.
WHITE	White balance adjustment mode	PRESET	For the factory preset value
		AUTO/A or AUTO/B	For automatic adjustment. (The white balance has been adjusted automatically using the value stored in memory A or B.)
BLACK	Black balance adjustment mode	AUTO	For automatic adjustment
		MANUAL	For manual adjustment using the CCU-M7/ M7P, CCU-M3/M3P Camera Control Unit, or RM-M7G Camera Remote Control Unit
GAIN	Setting the video output level	0 dB, 9 dB, or 18 dB	The video output level is 0 dB, 9 dB or 18 dB.
		MANUAL	For manual adjustment using the CCU-M7/M7P, CCU-M3/M3P, or RM-M7G.
SHUTTER	Setting the shutter speed	OFF	The shutter speed cannot be changed.
		Shutter speed set	The set shutter speed is displayed.
C. SCAN	Clear Scan	XX.X Hz	The scanning frequency is displayed.

# Reading the Viewfinder Screen Display Menu

The following chart shows how the display changes on the screen each time you press the DISP CHG switch. In all modes, the black balance and white balance can be adjusted automatically.

The display mode changes to the black balance or white balance adjustment mode during adjustment and returns to the selected display after the adjustment is complete.

## Order of Display Menus on the Viewfinder Screen



Each time you press DISP CHG the screen displays the above menus in the order indicated by the arrows.

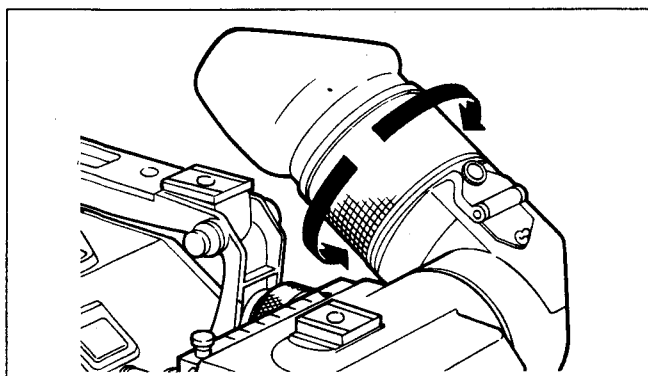
## Adjusting the Viewfinder Screen Display

After adjusting the viewfinder and the eye cup, make the following adjustments so that the viewfinder screen can be seen comfortably.

Note, however, that none of these settings affect the video output signal of the camera.

### Adjusting the Diopter

Because the eye sight of each individual is different, it may be necessary to adjust the diopter when a new camera operator uses the viewfinder.



- 1** Focus the lens.
- 2** Turn the diopter ring (see illustration above) within the range of -1D to -3D until the view is clear.

### Adjusting the Contrast and Brightness on the Viewfinder

- 1** Set the BARS switch on the camera to ON.
- 2** Adjust the contrast and brightness using the CONTR and BRIGHT controls on the viewfinder while referring to the color bar signals on the viewfinder screen.
- 3** Set the BARS switch to OFF after adjustment.

### Adjusting the Sharpness on the Viewfinder

Set the PEAKING switch on the viewfinder to ON.

The image on the viewfinder screen sharpens so that the lens can be focused easily.

## Adjusting the Video Monitor

When you are using a color video monitor to monitor the video output, adjust the color on the monitor using the procedure that follows. (See the section, "Connecting an S-VHS Format Portable VTR" on page 1-16 for information on how to connect a video monitor and a VTR.)

- 1** Set the BARS switch to ON.
- 2** Adjust the color and hue controls on the monitor while viewing the color bars on the monitor screen.
- 3** Set the BARS switch to OFF.

## Adjusting the Iris

### Automatic Iris Adjustment

Set the iris selector to "A." This is the normal setting for the automatic iris.

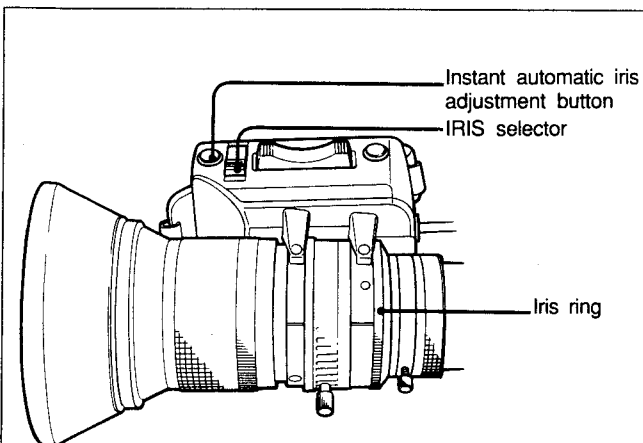
This setting makes the iris automatically adjust to the brightness of the object being shot.

### Adjusting the Iris Manually

Use manual adjustment when recording an object against a bright sky or a scene with high contrast.

Set the IRIS selector to "M."

### Temporary Automatic Adjustment



- 1** To automatically adjust the iris while the IRIS selector is set to "M", keep the Instant Automatic Iris Adjustment (IAIA) button depressed.

- 2** To fix the iris value that was set in Step 1, release the IAIA button. The iris remains fixed at this value until it is manually adjusted again.

### Selecting the Automatic Iris Reference Level

When adjusting the video level of a back-lit subject, you can change the automatic iris reference level setting. When you make the setting, it is retained in the memory of the camera.

The selectable values are as follows:

- -1.0
- -0.5
- NORMAL (reference value)
- 0.5
- 1.0

- 1** To select the automatic iris reference level, press the DISP CHG switch several times until the following (see the illustration on the next page) display appears on the viewfinder screen.

- 2** Select the setting value (from -1.0 to 1.0).
  - To raise the value**  
Press the UP/ON button
  - To lower the value**  
Press the DOWN/OFF button
  - To Reset to NORMAL**  
Press the UP/ON and DOWN/OFF buttons simultaneously

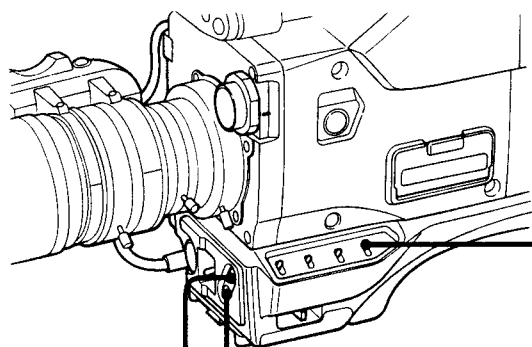
#### Note

When you connect the CCU-M7/M7P, CCU-M3/M3P Camera Control Unit, or RM-M7G Camera Remote Control Unit to the camera, change the automatic iris reference level using the controls on the CCU-M7/M7P, CCU-M3/M3P, or RM-M7G. The controls on the camera do not operate this function.

### Using the Zebra Pattern for Iris Adjustment

The Zebra Pattern appears on the portion of the screen where the video output is about 70 to 80 IRE (NTSC) or 490 to 560 mV (PAL). This pattern acts as a reference when you manually adjust the iris. (For the procedure, see "Checking the Video Level," page 1-49.)

## Menu Display and Automatic Iris Reference Level Setting



**2** UP/ON button  
DOWN/OFF button

**1** DISP CHG switch



Current setting value

Reference level of the  
automatic iris

Flashes

■ A. IRIS	: NORM
DETAIL	:
M. PED	:
SHUTTER	:

Viewfinder screen

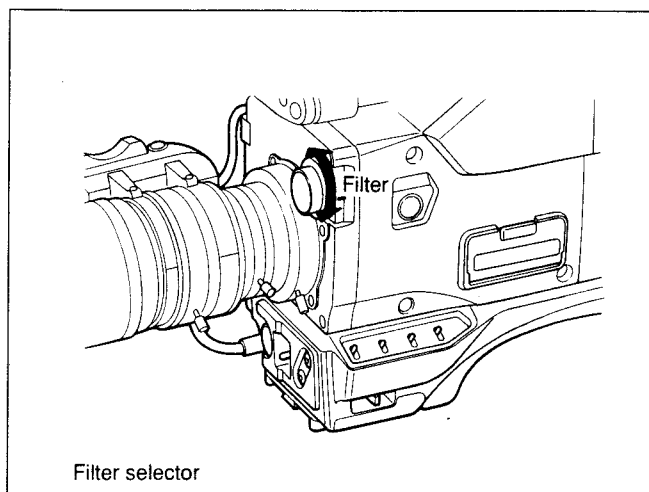
## Selecting the Filter

The color temperature changes according to lighting conditions. To compensate for this, use one of the color temperature conversion filters indicated in the table below. Turn the dial (see illustration below) to the correct filter number.

**Color Temperature Conversion Filter Table and Filter Dial on the Camera**

Filter number	Color temperature	Lighting conditions
1	3200K	Iodine lamp, sunrise, sunset
2	5600K + 1/4 ND*	Bright outdoor
3	5600K	Cloudy, rainy
4	5600K + 1/16 ND	Exceptionally bright scenes, beach in summer, snow fields in winter

\* ND: Neutral Density



### When the selected filter does not suit the lighting conditions

A warning such as "LOW LIGHT" displays on the viewfinder screen if you have selected the wrong filter for the lighting. (For details on warnings, see "Reading Warning Indications on the Viewfinder Screen Display," on page 1-31.)

## Using an ND Filter

Exceptionally bright scenes such as a sunny day at the beach or snow-covered terrain will look "washed out" when videotaped. To videotape these scenes naturally, use an ND filter and set the FILTER selector to the "4" position.

Use the above table as a guide for selecting the correct filter.

## Adjusting the Black Balance

Adjust the black balance to ensure picture clarity and life-like color reproduction.

When adjusting the black balance, adjust the black set simultaneously. The adjusted black balance value is retained in the memory of the camera and you need not re-adjust it later except for the following cases:

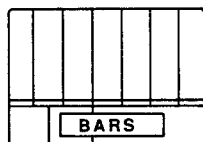
### Re-adjust the black balance if

- "MEMORY NG" appears on the viewfinder screen
- the camera has not been used for a long time
- the ambient temperature has changed radically

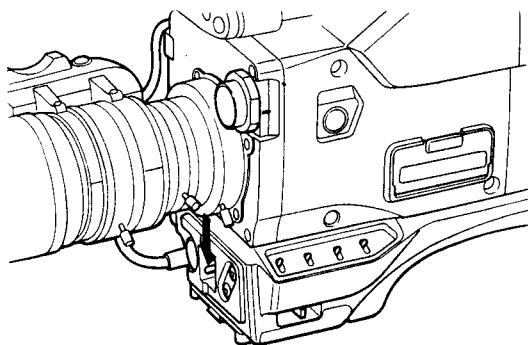
## Doing the Black Balance Adjustment

### Before You Begin

Set the camera so that the normal video signal outputs. If the video camera is outputting a color bar signal, you cannot adjust the black balance. If you try to do so, the viewfinder screen displays the following message over the color bars:



"BARS" Message and Color Bars



**1** To adjust the black balance, flip the **AUTO W/B/ BAL** switch to the **BLK** position (see above). When the W/B BALANCE switch on the camera control unit is set to **MANUAL**, you cannot adjust the black balance from the camera.

**2** When you hear a click, release the switch. "AUTO BLACK -OP-" appears on the viewfinder screen during adjustment, and "AUTO BLACK -OK-" appears on the viewfinder screen when adjustment is complete. The iris closes if the IRIS selector is set to "M". To open it again, you must open it manually.

### If black balance cannot be done

The characters shown below are displayed on the viewfinder screen.

#### Black Balance Error Message

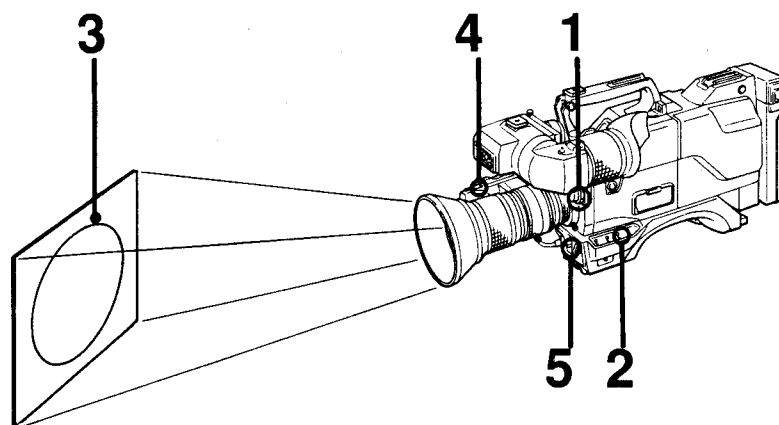
AUTO BLACK  
— NG —  
IRIS:  
NOT CLOSED  
TRY AGAIN

The above message means that the iris was not closed during black balance adjustment. This may occur when the lens connector is not connected correctly, or when some trouble occurs on the lens.

## Adjusting the White Balance

The white balance should be adjusted so that a white object is reproduced as white and life-like color is obtained. The white balance changes depending on the lighting conditions.

The camera has two memories, A and B, in which to store the adjusted white balance values. You can store two adjusted values under two different lighting conditions and recall either of the values according to ambient conditions.

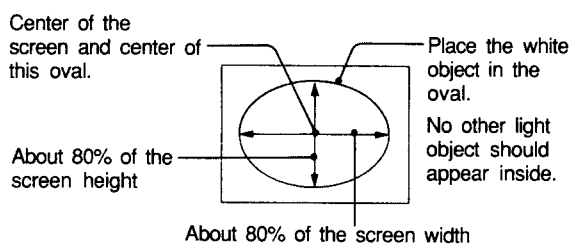


If "MEMORY NG" appears in the viewfinder screen readjust the white balance.

- 1** Select the position of the FILTER selector on the camera head according to lighting conditions.

- 2** Set the WHITE BAL selector to "A" or "B".

- 3** Zoom up on a white object such as a white cloth or paper with the same lighting conditions as those for shooting. The minimum white area required for adjustment is as follows:



- 4** Set the IRIS selector on the lens to "A".

- 5** Press the AUTO W/B/BAL switch to the WHT position. When you hear a click, release the switch. "AUTO WHITE -OP-" appears on the display screen during adjustment, and "AUTO WHITE -OK-" appears on the viewfinder screen when adjustment ends. The camera stores the adjusted white balance value in the selected memory.



### When the white balance cannot be done

The following characters appear on the screen display if white balance cannot be done. Re-adjust the white balance after taking the measures required in the chart below.

#### White Balance Error Messages

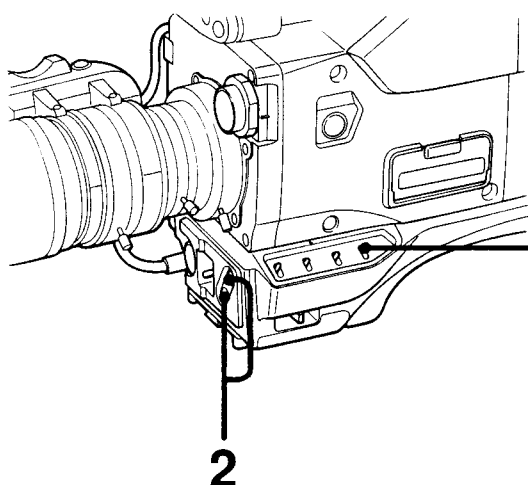


Display	Causes and measures
LOW LIGHT	Light is insufficient. Add illumination or raise the video output level with the GAIN selector.
??	The object is not white or very bright light appears in the picture. Change the object to an appropriate one.
C. TEMP. LOW CHG. FILTER	Color temperature is too low. Select the appropriate filter with the FILTER selector.
C. TEMP. HI CHG. FILTER	Color temperature is too high. Select the appropriate filter with the FILTER selector.
WHITE: PRESET	When the WHITE BAL selector is set to the PRE position. Set to the A or B position.
WHITE: MANUAL	When the CCU is connected, and the manual white balance adjustment is selected on the CCU. Select to the automatically adjust.
BARS	When the color bar signal is output. Set the OUTPUT switch to "CAM" position.

## Adjusting the Contrast

To adjust the contrast, change the pedestal level. When the master pedestal level is raised, the dark portion of the picture brightens, and when the level is lowered, the corresponding portion darkens. You can change the level from about -30% to +30% of reference level (0.7 V) in increments of 1%. The adjusted master pedestal level is kept in the memory of the camera.

### Adjusting the Contrast



#### 1 DISP CHG. switch



Current setting value:  
the percentage of the  
reference level

Master pedestal level

Flashes

A . IRIS :	
DETAIL :	
M . PED :	00
SHUTTER :	

- 1** Press the DISP CHG switch several times until the display above appears on the viewfinder screen.

- 2** Change the master pedestal.

#### To raise the level

Press the UP/ON button on the camera head.

#### To lower the level

Press the DOWN/OFF button on the camera head.

#### To reset the level to the reference level

Press the UP/ON and DOWN/OFF buttons simultaneously.

#### On setting the master pedestal level

If the CCU-M7/M7P, CCU-M3/M3P Camera Control Unit is connected to the camera, set the master pedestal level from the CCU or RM-M7G Camera Remote Control Unit.

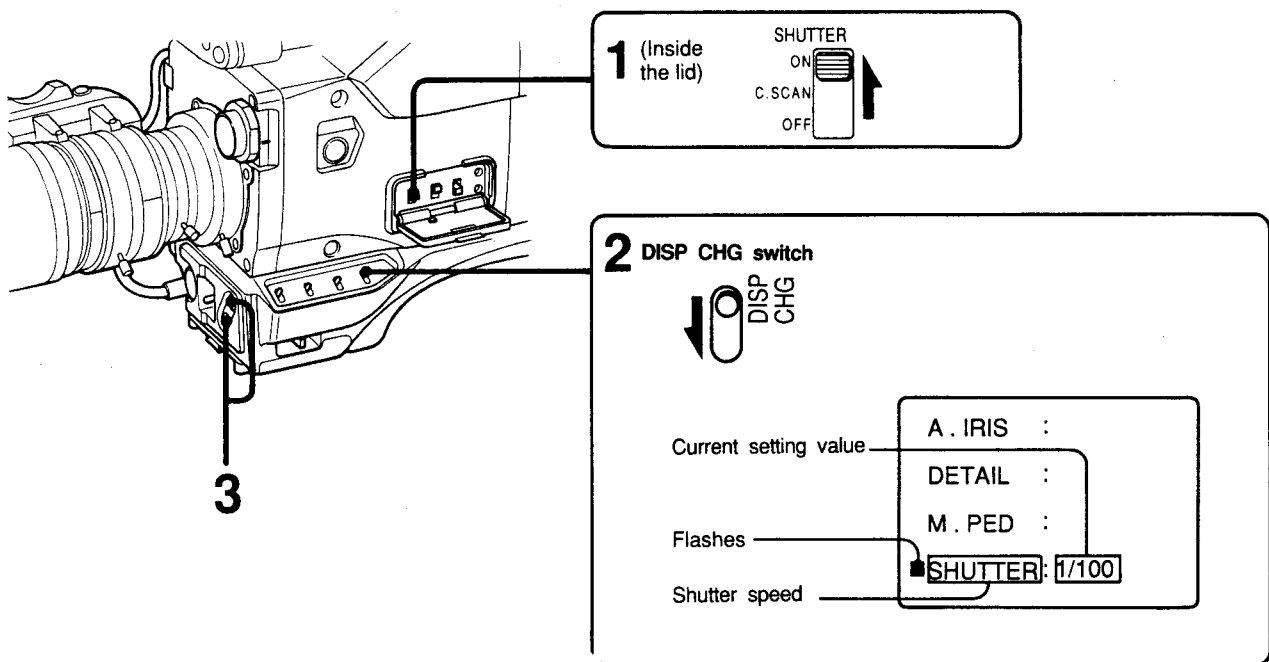
## Selecting the Shutter Speed

The shutter speed is factory set to 1/100 for NTSC and 1/60 for PAL. You can change the shutter speed if necessary. Select the shutter speed from the following:

For NTSC: 1/100, 1/250, 1/500, 1/1000, 1/2000  
For PAL: 1/60\*, 1/250, 1/500, 1/1000, 1/2000.

Your selection is retained in the memory of the camera.

### Selecting the Shutter Speed



**1** To change the shutter speed, set the SHUTTER switch on the camera head to ON.

**2** Press the DISP CHG switch several times until the display above appears on the display screen. If the SHUTTER switch is set to OFF, "OFF" appears at the current setting value.

**3** Select the shutter speed.

**To increase the shutter speed value**

Press the UP/ON button on the camera head.

**To decrease the value**

Press the DOWN/OFF button on the camera head.

**To reset the value to 1/100 (for NTSC) or 1/60 (for PAL)**

Press the UP/ON and DOWN/OFF buttons simultaneously.

\*When you are using the RM-M7G to control the camera, the 1/100 setting on the RM-M7G sets the camera shutter speed to 1/60 and "1/60" appears on the screen display in the viewfinder. This is to prevent flickering when you are shooting a CRT screen.

## Using the Clear Scan Function

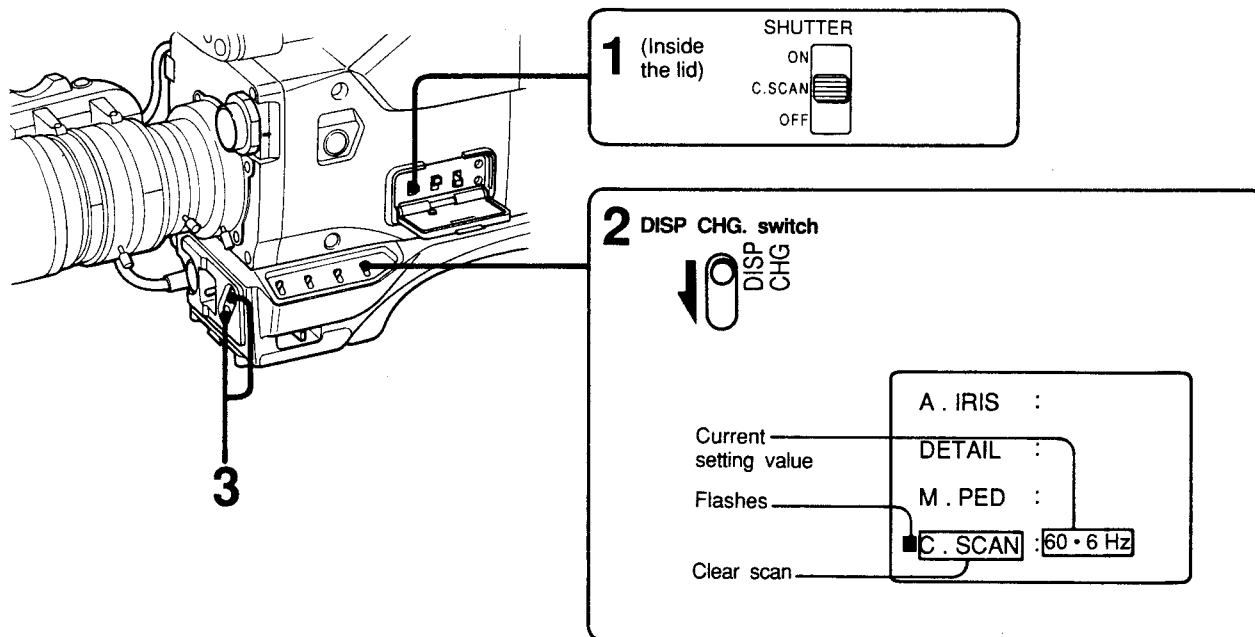
The Clear Scan function decreases the slant noise when you are shooting a computer screen using this camera. This is necessary since the scanning speed of the computer differs from that of the camera.

While watching the monitor or viewfinder screen, you can adjust for slant noise by pressing the UP/DOWN button for the appropriate frequency listed below (displayed in Hz).

NTSC 60.4 to 101.1 Hz

PAL 50.3 to 101.1 Hz

### Using the Clear Scan Function to Decrease Slant Noise



**1** Set the CLEAR SCAN switch on the camera to ON.

**2** Press the DISP CHG switch until the above screen appears in the viewfinder display.

**3** Change the setting value.

**To increase the Clear Scan setting value**

Press the UP/ON button on the camera.

**To decrease the value**

Press the DOWN/OFF button on the camera.

**To reset to the minimum value**

Press the UP/ON and DOWN/OFF buttons at the same time.

The amount the frequency changes by each press is not the same. The displayed frequency is the approximated frequency.

The frequency you have selected is stored in the memory of the camera and is retained even after the power is turned off.

When the CCU-M7/M7P, CCU-M3/M3P, or RM-M7G is connected, change the Clear Scan frequency using the UP/DOWN button on the camera.

### Note on the scanning frequency difference

The scanning frequency of CRT monitors differs among brands. Therefore, even with the Clear Scan, the noise may not decrease remarkably in some cases. The frequency may change depending on the software running on the computer at the time. Readjust the frequency in this case. Use the following recommended frequencies to help you:

<b>Apple Macintosh*II series</b>	66.7 Hz
<b>IBM PS/2* series (720 x 400)</b>	70.1 Hz

\* Macintosh is a trademark of Apple Computer Inc. and PS/2 is a registered trademark of International Business Machines Corporation.

## Advanced Operations

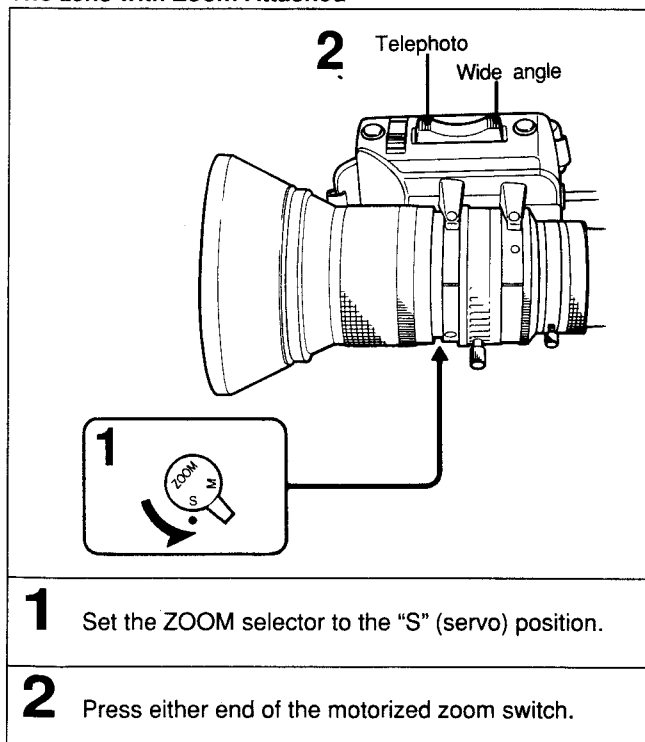
The following section explains procedures for using the zoom lens, adjusting the picture output, adjusting output levels, and synchronizing two or more cameras superimposing title characters.

### Doing Close-Ups and Wide-Angle Shots

You can go from wide angle to telephoto shots by using the motorized zoom or doing the zoom manually.

## Motorized Zoom

### The Lens with Zoom Attached

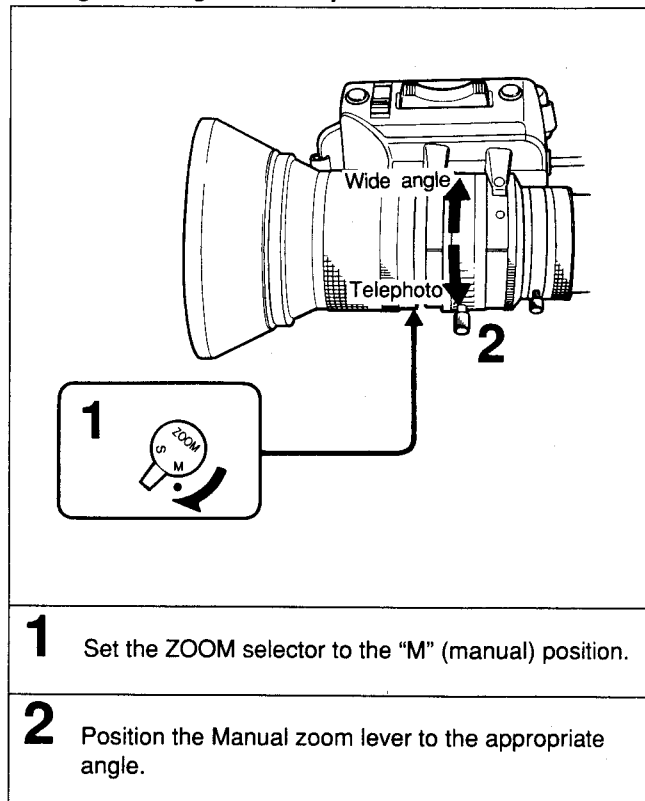


To zoom faster, press all the way down on the motorized zoom switch. Press the switch lightly to zoom more slowly.

## Manual Zoom

Manual zoom allows more precise control over the zooming speed.

### Setting Wide Angle and Telephoto Zoom



### Tips on Using the Zoom

#### Correct Focusing

If the subject is in focus in the telephoto position, it will remain in focus when you zoom back to wide angle.

#### For a more stable picture

We recommend placing the camera on a tripod when using the zoom. If you zoom with the camera on your shoulder, stand as steadily as possible.

#### Positioning the object at the center of the screen

For zoom-in, adjust the focus in the telephoto position, and set to the wide angle position. Then start to zoom in. Make sure that the object stays at the center of the screen while you are using the zooming.

## Keeping the Shot in Focus — Adjusting the Focal Flange Length

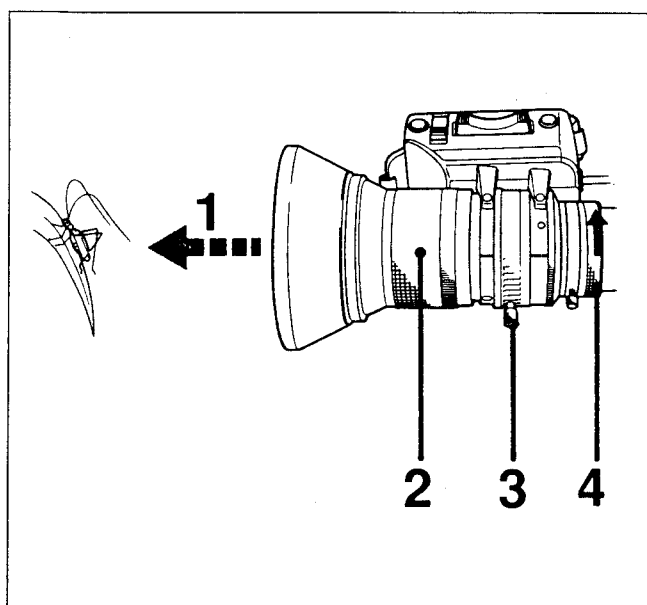
The proper flange length adjustment ensures that the object is in focus both at the wide-angle and telephoto position when using the zoom. Once you have made the flange focal length adjustment, you do not have to re-adjust the lens as long as the lens stays on the same camera.

### Adjusting the Focal Flange

<b>1</b> To adjust the focal flange, set the IRIS selector to M.	<b>6</b> Turn the focus ring until the chart is in focus at about three meters (10 feet) from the lens.
<b>2</b> Set the iris ring to 1.8. Position the supplied chart for iris adjustment and illuminate the chart so that the proper video level is reached when the iris ring is at 1.8.	<b>7</b> Turn the manual zoom lever to 9.5, wide-angle position.
<b>3</b> Loosen the screw on the Ff adjustment ring.	<b>8</b> Turn the Ff adjustment ring and focus on the chart used in Step 6.
<b>4</b> Set the ZOOM selector to M.	<b>9</b> Repeat Steps 5 through 8 until the chart is in focus both at the telephoto position and at the wide-angle position.
<b>5</b> Turn the manual zoom lever to 152, telephoto position.	<b>10</b> Tighten the screw on the Ff adjustment ring firmly.

## Doing Close-Ups — Shooting Small or Nearby Objects

The Close-Up or Macro function on the DXC-537 series camera lets you zoom in tightly on flowers, insects, and even photographs without distortion. The minimum distance from the lens to the object is 70 mm (2<sup>7</sup>/<sub>8</sub> inches) in the 9.5 wide-angle zoom position.



**1** Adjust the distance between the lens and the object to get the desired image size.

**2** Set the focus ring to the ∞ (infinity) setting.

**3** Turn the MACRO ring until it stops while pushing the button in the direction of the MACRO arrow.

**4** Focus on the object by turning the manual zoom lever with the ZOOM selector set to M.

**5** When the close-up operation is complete, return the MACRO ring to its original position.

If you want to reduce the object's size on screen

**1** Follow Steps 1 through 4 above.

**2** Turn the MACRO ring slightly toward its original position and adjust the focus with the manual zoom lever again.

### Note on the Focus Ring

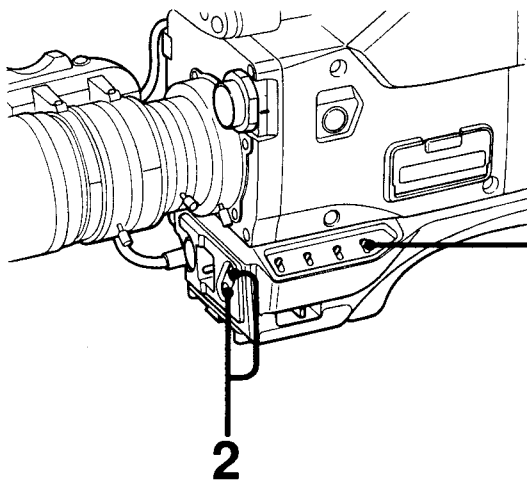
If the focus ring is set to ∞ (infinity) while the MACRO ring is turned to "MACRO," the focus can be continually adjusted from the close-up position to ∞ (infinity) with the manual zoom lever.



## Adjusting the Sharpness of the Picture

You can increase (harden) or decrease (soften) the sharpness of the picture. Change the value of the detail level to increase or decrease the sharpness. The detail level can be set from -99 to +99 of the factory-set reference level (00).

### Changing the Value of the Detail Level



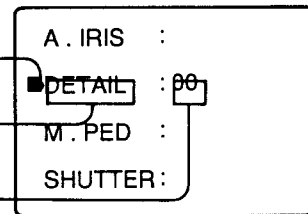
#### 1 DISP CHG switch



Flashes

Detail level

Current setting  
value



1

Press the DISP CHG switch several times until the above display appears on the viewfinder.

2

Change the value of the detail level.

#### To increase the value

Press the UP/ON button on the camera head.

#### To decrease the value

Press the DOWN/OFF button on the camera head.

#### To reset the value to the reference level

Press the UP/ON and DOWN/OFF buttons simultaneously.

If you increase the video output level when you increase the detail level, the noise in the picture increases.

#### When using the RM-M7G

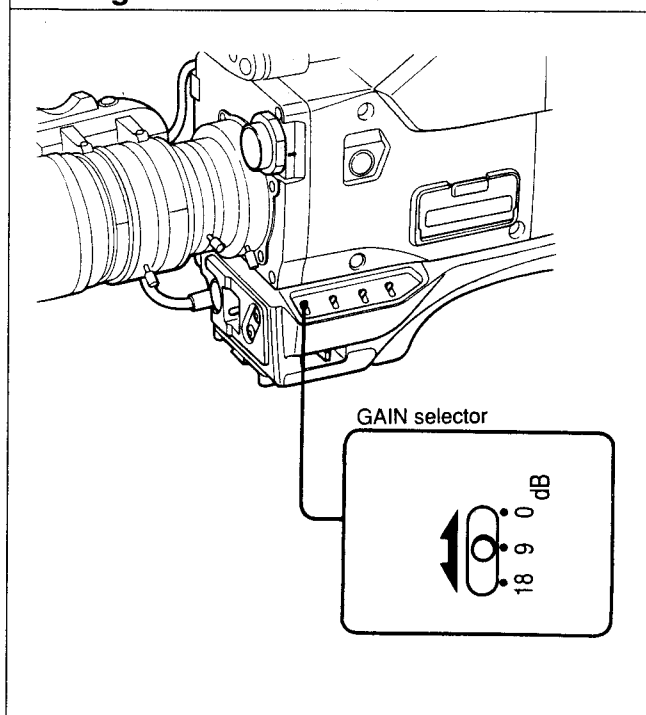
When the RM-M7G Camera Remote Control is connected to the camera, the detail level can be changed from the RM-M7G.

## Selecting the Output Level

If you cannot get a clear picture because of insufficient light, set the GAIN selector to a higher or lower position. (The GAIN selector is normally set to "0 dB".)

The video output level can be raised by 9 dB by setting the GAIN selector to "9 dB" and by 18 dB by setting the selector to "18 dB".

### Setting the Gain Selector



## Checking the Video Level

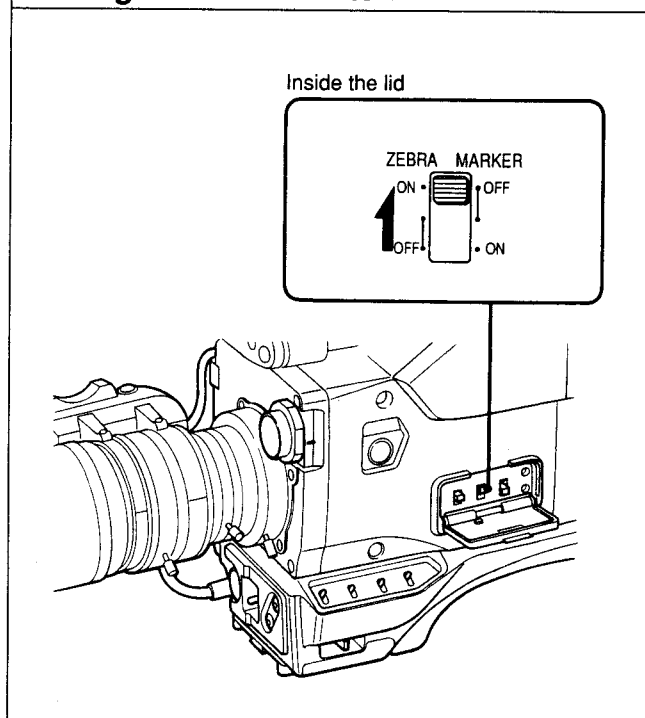
Use the zebra pattern (generated by the camera) as a reference when adjusting the iris manually. The zebra pattern indicates areas of the picture where the video level is approximately 70% to 80% (for NTSC) or 490 mV to 560 mV (for PAL):

When the ZEBRA switch is set to ON, a zebra pattern appears on the part of the viewfinder screen where the video output level is 70 to 80 IRE or 490 to 560 mV.

Adjust the iris so that the zebra pattern appears over the subject being shot (for example, the face of a back-lit person).

If it is not necessary to use the zebra pattern to adjust the iris, set the ZEBRA switch to OFF.

### Setting the Zebra Switch



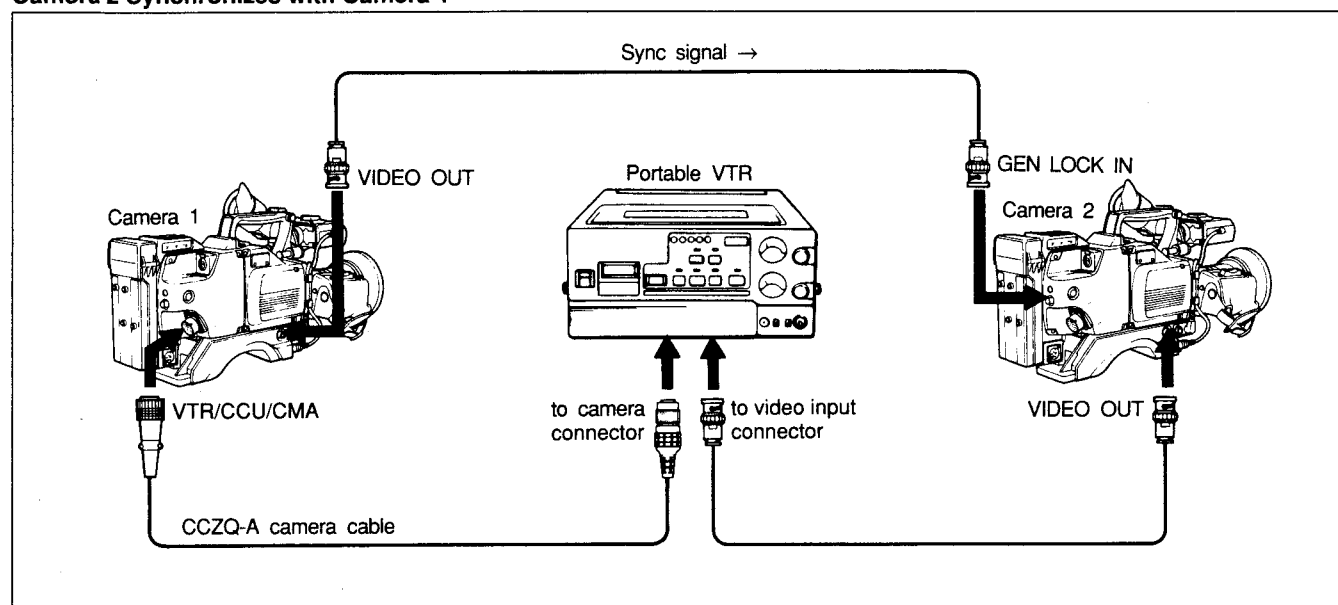
## Synchronizing Two or More Cameras (Without Using a Camera Control Unit)

When a BS or VBS signal is connected to the GEN LOCK IN connector on the camera adaptor, the camera synchronizes with the connected signal. Use the GEN LOCK IN connector when you are using two or more cameras without a camera control unit. (See the illustrations below for sample connections.)

### Connecting Two Cameras or More Cameras to a VTR

The illustration below gives an example of how to connect two cameras with a VTR.

#### Camera 2 Synchronizes with Camera 1

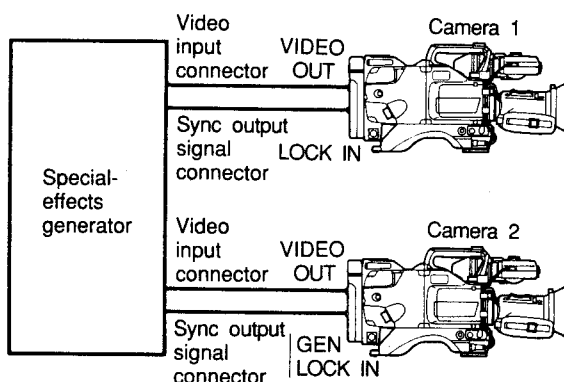


## Connecting Two or More Cameras and a Special-Effects Generator

When two or more cameras are used simultaneously in connection with a special-effects generator, supply each camera with the same reference signal and adjust each camera to get the same picture tone. Adjust the SC (subcarrier) phase and the H (horizontal) phase following the procedures and illustration described below.

- 1** Do a rough subcarrier phase adjustment using the SC phase selector.
- 2** Make the fine adjustment using the SC PHASE control and a vectorscope.
- 3** Adjust the horizontal phase using the H PHASE control and a waveform monitor or oscilloscope.

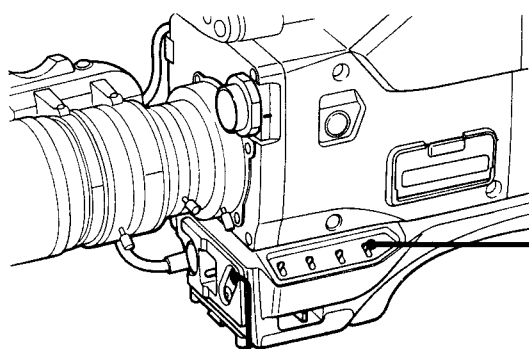
### Camera 1 and Camera 2 Synchronize with a Special-Effects Generator



## Setting Title Characters Through the Viewfinder

This camera contains a built-in character generator that allows you to superimpose characters over the picture being shot. Both the picture and the superimposed characters appear on the monitor screen. If a recording VTR is connected to the camera, the superimposed characters can be recorded on the VTR.

### Preparation



**2** UP/ON button

**1** DISP CHG switch



Viewfinder screen

TITLE SET ?

If any characters are stored in memory,  
they display here.

**1** Press the DISP CHG switch several times until the above indication appears on the viewfinder display screen.

**2** To put the camera into the title setting mode, press the UP/ON button.

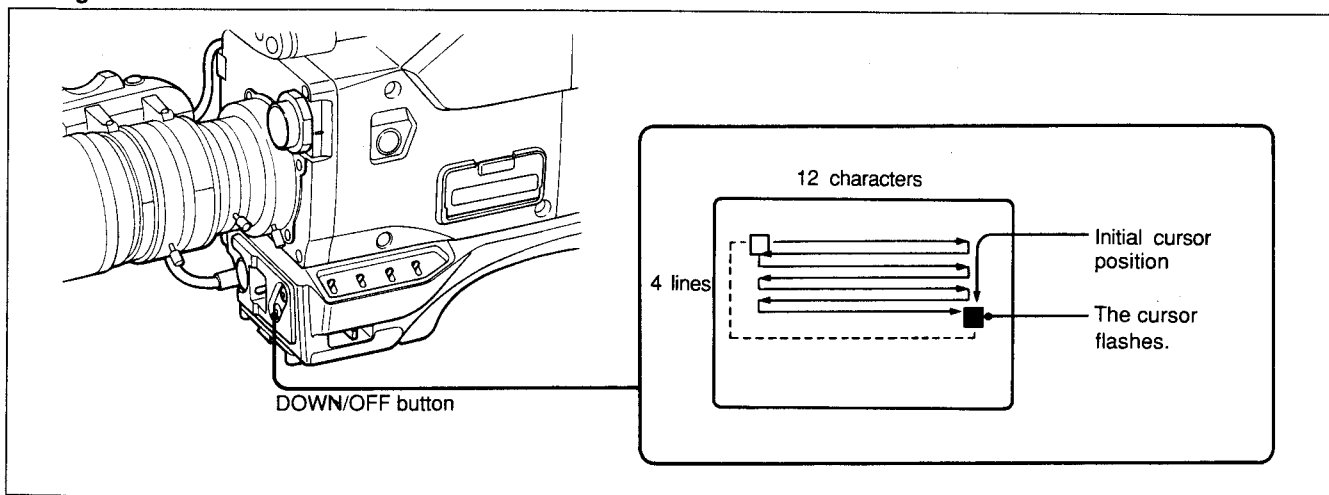
#### To clear all the memorized characters

Press the UP/ON and DOWN/OFF buttons at the same time.

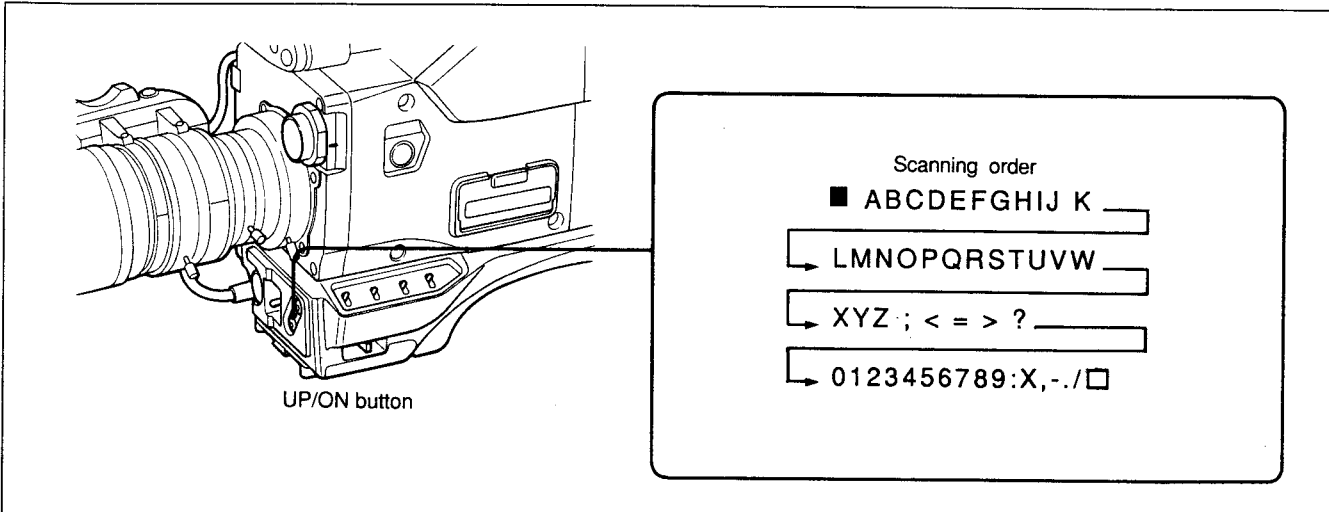
## Character Setting procedures

Set title characters one by one choosing them from the display using the UP/ON and DOWN/OFF buttons. Up to 12 characters can display on one line. Up to 4 lines can be displayed. Title characters, once set, remain in the memory of the camera, and are not erased when the power is turned off.

### Moving the cursor



### Setting Title Characters



- 1** To set characters and letters from the display, press the UP/ON button repeatedly until the cursor flashes on the character you want to set.

**To change the characters in reverse alphabetical order**

While pressing the UP/ON button, press the DOWN/OFF button.

- 2** Press the DOWN/OFF button to set the selected character. The cursor moves one space to the right.

- 3** Repeat the above steps 1 and 2 to set all the characters.

## To move the cursor to the right

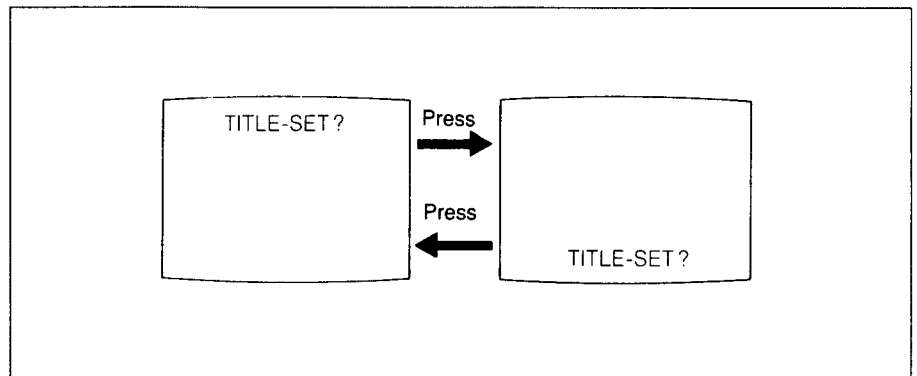
Press the DOWN/OFF button repeatedly to move the cursor.

## To move the cursor to the left

While pressing the UP/ON button, press the DOWN/OFF button repeatedly.

### To replace a character

Return the cursor to the position of the character you want to replace, select the desired character with the UP/ON button, and press the DOWN/OFF button. The characters must be changed one by one as described in the above procedure.



### To change the position of the title characters

Press the DOWN/OFF button.

### When Using a VO-8800/8800P Portable VTR

If you are using a VO-8800/8800P Portable VTR, do not use the upper character display area because the VTR tape remaining time shows here. Use only the lower character display area.

### To exit character setting mode

Press the DISP CHG switch.

## The Next Time You Use the Camera

When you turn on the camera, the memorized characters display on the viewfinder screen at step 1 of "Preparation" (see page 1-52). To display the characters on the monitor screen and output them to the VTR, press the UP/ON button.

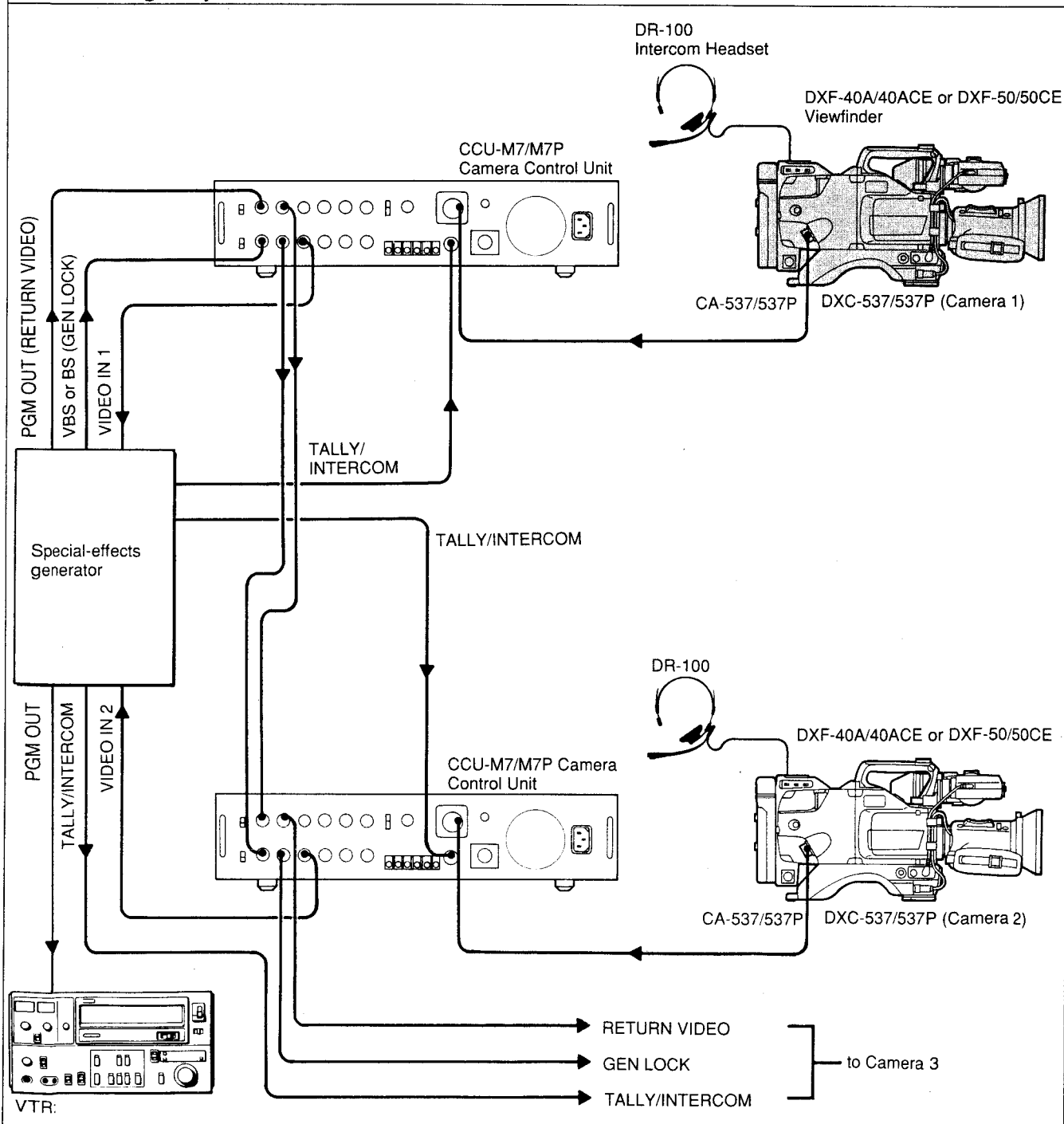
## Using the Camera in a Studio

When you are using more than two cameras simultaneously in a video studio, you need a special-effects generator, such as the Sony SEG-2550A, to do wipe effects and switching between equipment. You also need a CCU-M7/M7P Camera Control Unit to match picture quality and color between

cameras (see "Connecting a Camera Control Unit" on page 1-20).

Refer to the illustration below for how to connect the above mentioned and other optional equipment.

### Connecting a Special-Effects Generator and a CCU for Studio Use







## 1-4. COLOR VIDEO CAMERA OVERVIEW

### Optional Accessories and Recommended Equipment

#### Lens and Accessories

Zoom lens: VCL-916BY

Lens remote control unit: LO-23

Tripod attachment: VCT-14

#### Camera Adaptor

Camera adaptor: CA-537/537P, CA-327/327P, CA-511/  
325A/325AP/325B

Camera adaptor: CMA-8A/8ACE

Camera remote control unit: RM-M7G

#### VTR

Hi8 format video cassette recorder: EVV-9000/9000P

Portable video cassette recorder: VO-8800/8800PS

Betacam SP Portable Recorder: BVW-35/35P

SP-Umatic video cassette recorder: BVU-150/150P

#### Battery Pack and Charger

Battery pack: NP-1B, NP-1A

Battery charger: BC-1WB, BC-1WA

#### Microphone and Accessories

Condenser microphone: ECM-672, C74

Microphone holder: CAC-12

Microphone cable: EC-0.5C2

#### Equipment for Studio Use

Camera control unit CCU-M7/M7P

Camera control unit: CCU-M3/M3P

Special-effects generator: SEG-2550/2550P

Universal chroma keyer: CRK-2000

Wipe pattern extender: WEX-2000/2000P

Electronic viewfinder: DXF-50/50CE

Electronic viewfinder: DXF-40A/40ACE

Electronic viewfinder: DXF-501/501CE

Intercom headset: DR-100

Rack mounting metal: RMM-1800

#### Camera Cable and Others

Camera cable with Z-type 26 pin connector:

CCZ-A2, CCZ-A5, CCZ-A10

CCZ-A25, CCZ-A50, CCZ-A100

Camera cable with Z-type 26 pin and Q-type 14 pin connector:

CCZQ-A2, CCZQ-A5, CCZQ-A10

CCZQ-A2AM

Camera cable with Q-type 14-pin connector: CCQ-2BRS,

CCQ-5BRS, CCQ-10BRS

Camera cable with Q-type 14-pin connector: CCQ-10AM,

CCQ-20AM, CCQ-50AM, CCQ-100AM

Camera cable with Z-type 26-pin and J-type 10-pin  
connectors: CCZJ-2

Cable extension adaptor:

CCZZ-1B, CCZZ-1E

Carrying case: LC-421

Camera rain cover: LCR-1

## Sample Video System Configuration

